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LECTURES
ON THE
THEORY AND PRACTICE OF MEDICINE;

NOW IN COURSE OF DELIVERY AT THE
THEATRE OF ANATOMY AND MEDICINE, WEBB-STREET, SOUTHWARK.
BY
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&c., &c.

INFLAMMATION (continued):—*Facts, and not theories, considered. Signs of inflammation. Explanation of the several Phenomena indicating its presence. Changes produced by inflammation. Signs of suppuration. Gangrene and sphacelus. Symptoms produced by inflammation; they are referable to three heads. Inflammation modified according to the tissues. Examples shown in serous and mucous membranes; curative effects of inflammation in the former.*

GENTLEMEN:—In treating of the appearances presented by inflammation, I have carefully stated the results of my own observation,—results which I propose to show to you on some future occasion. I have as carefully avoided surcharging these lectures with the various hypotheses and opinions of writers upon the nature of inflammation, being persuaded that at the point where observation ceases and speculation begins, you have the boundary of science. Who knows anything about "debility," or "increased action," of the capillary vessels, when it is not even known whether these vessels have tunics or any action at all? But you may know that in every case of inflammation there is an impeded flow, nay, a state of stagnation, in the capillaries, an augmented size of the minute arteries, and minute ecchymoses, for you can see them. You may know that in effused albumino-fibrine you may have new vessels, elongated from the old, for you can inject them.

If you wish to become acquainted with the "theories," as they are improperly called, of inflammation, you may read the works of Dr. Wilson Philip, Dr. Hastings, and, especially, the work of Dr. J. Thomson; but if you wish to become acquainted with the true theory of inflammation, read the book of Nature. Inflame the web of the frog, the ear of the rabbit, experimentalize, and observe for yourselves. How gladly would I direct your course, and point out new objects for inquiry. I would say, examine the veins in the ear of the rabbit, as Hunter did the arteries; examine the condition, the degree of organization, of false membranes, accurately; examine the puriform discharges from serous and mucous membranes, under the influence of inflammation, but as yet unbroken by ulceration. Remember, that, as a disease, and as a cure of disease, no doctrine in medicine or surgery is so important as that of inflammation.

Having passed under review the principal points involved in the question of the nature of inflammation, we are now prepared to consider—

IV. *The Signs of Inflammation.*

The signs of inflammation are—

1. *Redness.*
2. *Tumour.*
3. *Augmented temperature.*
4. *Augmented sensibility.*

The signs of inflammation, when this is *external*, are very distinctly described by Celsus: "Notæ vero inflammationis sunt quatuor; rubor, tumor, cum calore, et dolore;" Celsus very properly adds, "quo magis erravit Erasistratus (the Broussais of the Augustan age), qui febrem nullam sine hâc esse dixit." When *internal*, inflammation manifests itself by *symptoms* which vary with the functions of the part affected, of which they are modifications.

The augmented *redness* of parts affected with inflammation depends upon the augmented quantity of blood, and especially of its red particles, and this upon the augmented size of its vessels,—of the true capillaries, and of the minute arteries and veins, of which the former are seen to be enlarged in inflamed transparent parts, as the web of the frog under the microscope; and the latter are obvious to the unassisted eye in the inflammation of the conjunctiva.

To these sources of redness in inflamma-

tion must be added, the minute ecchymoses, or extravasations of blood which so generally occur. These may be seen, and, indeed, are sometimes more extensive than I have described them to be, in the bloodshot eye, for example. In the condition, first, of the true capillaries; second, of the minute arteries; and, third, in the minute ecchymoses, we have, then, the three sources of redness in inflammation.

The *tumour*, or swelling, which attends inflammation depends, like the augmented redness, principally upon the augmented quantity of blood in the part. I say *principally*, because inflammation does not subsist long without more or less of *effusion*, either of albumen or *serum*, in recent inflammation, of albumino-fibrine or *lymph* in the less recent, or of both; events of vast importance in this sometimes morbid, sometimes curative, process.

Here, then, we again have *three* causes of the tumour, or swelling, of the part in inflammation.

The *heat*, or increased temperature of inflamed parts, is probably owing to the same cause. External parts, in general, are warmed by the contact of warm blood, and cooled by that of the atmosphere; their actual temperature is a mean result of the operation of these two causes. Augmented temperature may take place if the circulation be increased, or the action of the atmosphere be withdrawn. The former occurs in inflammation. More blood passes through an inflamed part, by means of its collateral minute arteries and veins, and their anastomoses, than in health. Its temperature approaches that of the blood,—that is, is elevated. But the question still remains,—is there ever a degree of elevation of temperature not to be accounted for in this manner,—for instance, beyond that of the blood itself in the central parts of the system? Hunter investigated this subject. He observes—

"A man had the operation for the radical cure of the hydrocele performed at *St. George's Hospital*. When I opened the tunica vaginalis, I immediately introduced the ball of the thermometer into it, and close by the side of the testicle. The mercury rose exactly to 92 degrees. The cavity was filled with lint, dipped in salve, that it might be taken out at will; the next day, when inflammation was come on, the dressings were taken out, and the ball of the thermometer introduced as before, when it rose to 98 degrees and three-fourths exactly.

"Here was an increase of heat of six degrees and three-fourths; but even this was not equal to that of the blood, probably, at the source of the circulation in the same man. This experiment I have repeated more than once, and with nearly the same event.

"I made an incision into the thorax of a dog, the wound was made about the centre of the right side, and the thermometer pushed down, so as to come in contact, or nearly so, with the diaphragm. The degree of heat was one hundred and one; a large dossil of lint was put into the wound to prevent its healing by the first intention, and covered over by a sticking plaster. The dog was affected with a shivering. The day following, the lint was extracted, and the thermometer again introduced; the degree of heat appeared exactly the same, viz., one hundred and one. This dog recovered.

"The natural heat of the vagina of a young ass was one hundred degrees. A solution of corrosive sublimate, as much as would dissolve in a tea-cup full of water, viz., about ten grains, was injected into the vagina. In about two hours after, the mercury fell to ninety-nine degrees. Thursday morning, ninety-nine degrees; evening, one hundred. Friday morning, ninety-nine; evening, near to one hundred and one. Saturday morning, ninety-nine; evening, one hundred degrees."

From these experiments, it is obvious that the heat of an *external* part affected with inflammation is augmented,—that it approaches more nearly to that of *internal* parts,—or of the blood itself. The temperature of internal parts subjected to inflammation undergoes no augmentation.

That the temperature of a part is accurately proportionate to the quantity of the circulation, is proved by the events observed on tying the artery for aneurysm. The temperature is suddenly diminished; but is gradually restored. After a ligature for popliteal aneurysm, the temperature was,—

On the first day	80°
second	84°
third	89°
fourth	89°
sixth	89°
seventh	89°
eighth	89°
ninth	89°
tenth	90°

The pain, or augmented sensibility, in inflammation, may depend on the augmented quantity of blood and size of the minute arteries of the part. It is, therefore, sometimes pulsative; that is, still further augmented under the influence of the systole of the left ventricle.

This augmented sensibility is so great, in some instances, that parts, which in a state of health are insensible, become acutely sensitive under the influence of inflammation; such are the serous membranes, cartilage, tendon, ligament, and even bone. The mucous membranes do not appear to experience the same change in regard to sensibility, when under the influence of inflammation.

That mere augmented circulation will induce augmented sensibility, is proved by the simple experiment of tying a ligature

slightly upon the finger. The pulsation of the heart and artery, not felt before, becomes immediately perceptible. The same fact is proved by the phenomena observed in the erectile tissues.

As a general rule, whenever the circulation is obstructed in the arteries, as by a ligature, an effort is made to remedy the defect by enlargement of collateral branches; this occurs in inflammation; but the remedy is in *excess;* and in this manner there is, in reality, augmented circulation, with unnatural redness and tumour. If the interruption to the circulation be extreme, gangrene and sphacelus are induced.

V. *The Changes in Inflammation.*

The changes in the condition of inflammation are—

1. *Resolution.*
2. *Œdema.*
3. *Adhesion; Cicatrix.*
4. *Softening.*
5. *Induration.*
6. *Ulceration.*
7. *Suppuration; Pus.*
   1. *Abscess; Fistula;*
   2. *Infiltration; Diffusion;*
   3. *Its Signs and Symptoms.*
8. *Gangrene; Sphacelus.*
   1. *Circumscribed;*
   2. *Diffused.*

By the term *resolution* is simply meant the subsidence of the actions which constitute inflammation; the redness, tumour, heat and pain gradually disappearing.

It has already been stated, that the augmented bulk of a part affected with inflammation, is partly owing to the repletion and augmented size of the capillary and minute vessels, and to the interstitial effusion of limpid albumen or serum. This latter circumstance, viewed distinctly from the former, constitutes *œdema*, and one of the early effects of inflammation. It frequently remains in the form of a pale and colourless swelling, after the vascular repletion, and the consequent redness, have disappeared. In one case,—inflammation of the larynx,—it is frequently the cause of death, obstructing the upper orifice of the trachea and suspending respiration. In the eye, this condition has received the designation *chemosis*, the distension of the conjunctiva preventing the closure of the eyelids; it is particularly seen in that destructive inflammation of the eye arising from phlebitis; it is the white swelling of inflamed parts, sometimes accompanying, sometimes following, the actual inflammation.

If parts, divided by an incised wound or surgical incision, be brought into accurate contact, they contract *adhesion*, by means of an intervening deposit of coagulable lymph, or what I may call albumino-fibrine, termed *cicatrix.*

This adhesion is sometimes affected at once; it is then somewhat quaintly designated *union by the first intention.* Sometimes other processes intervene; the effusion of lymph and of pus takes place from the unadherent surfaces, and the adhesion is more slowly accomplished by the gradual union of the contiguous layers of lymph. In the third case, the wound may remain open, granulations sprout up and gradually fill the space, and become, in their turn, covered by lymph, which, at first liquid, becomes indurated by the absorption of its fluid particles, and at length vascular or organized, cellular, and, in every point of view, a living solid.

Adhesion and cicatrization may occur in any of the tissues of the body, internal and external; in cavities, or in canals, and constitute many of those wonderful operations of Nature, for the security of the individual, to which allusion was early made.

The next event which occurs in inflammation, is *softening*, or *ramollissement;* it is the opposite of that last mentioned, or adhesion, for in this the natural cohesion of the part affected is destroyed. It occurs in all the tissues, but especially in the parenchyma of organs, the brain, the heart, the liver, the spleen, &c.; and in the mucous membrane, or lining of canals, that of the stomach, the intestines, &c.; least, if at all, in the serous membranes, or lining membrane of cavities, the arachnoid, the pleura, the peritoneum, &c.

Softening is amongst the first effects of inflammation,—of acute inflammation; *induration* belongs to *chronic* inflammation: the former depends upon a morbid loss of cohesion of the particles; the latter, probably, upon the interstitial deposit of coagulable lymph, or albumino-fibrine.

Ulceration exists where portions of the superficial substance of a part have been removed. This takes place by interstitial absorption; sometimes simply, when the ulcer is said to be healthy; sometimes rapidly, when the ulceration is termed *phagedenic*; sometimes with the separation of dead parts, when the ulcer is designated *sloughing.* The external cutaneous, the internal mucous surfaces, and the synovial membranes are those most prone to ulceration. This process in the serous membranes is rare; and when it takes place in the parenchymatous substance of organs, it is spoken of under another designation—suppuration. Deeply-seated parts, as bone, ligament, cartilage, may be exposed in a state of ulceration: in the first of these textures, the process of ulceration is termed *caries;* it frequently follows the death of the part, or necrosis and exfoliation.

Ulceration may either proceed, or become arrested, and yield to an opposite process, or cicatrization. Hunter observes,—

"It is easy to distinguish between a sore

that is ulcerating, and one which is standing still, or granulating.

"The ulcerating sore is made up of little cavities, or hollows, and the edge of the skin is scolloped, or notched; is thin, turned a little out, and overhangs, more or less, the sore. The sore is always foul, being, probably, composed of parts not absolutely absorbed, and discharges a thin matter.

"But when the ulceration stops, the edge of the skin becomes regular, smooth, a little rounded or turned in, and of a purple colour, covered with a semi-transparent white."

An ulcerating surface is generally an absorbing surface. Ulcers of Peyer's and of Brunner's glands in the intestines, lead, probably, in this manner, to enlargement of the corresponding mesenteric glands; ulcers about the heel from chilblain, led, in one instance, to inflammation along the absorbent vessels which run along the leg and thigh, which terminated in repeated abscesses. The affection of the inguinal glands in chancre, and also in gonorrhœa, is a fact familiar to us all. Is there ulceration in all cases of the latter malady thus complicated with bubo?

Suppuration is one of the most frequent results of inflammation. The pus formed is sometimes enclosed in an orbicular cavity, under the designation of abscess; sometimes it burrows into the adjacent textures, under that of fistula, especially near the anus; sometimes it is not restricted in its locality, but is infiltrated into the meshes of the cellular membrane; and sometimes it is diffused over the surface upon which it is formed, as in cases of acute inflammation of the peritoneum.

The cavity of an abscess is lined and limited by the formation of a cyst, effected by the effusion of albumino-fibrine. This cyst is thin in recent abscess, thicker in abscesses of longer duration, and so intimately adherent to the adjacent cellular texture as not to be readily separated, or even distinguished from it.

The same sort of albumino-fibrine constitutes the fistula, which, in fact, is only a chronic, elongated abscess, with an external and perhaps an internal aperture.

Some abscesses are neither orbicular nor fistulous, but very extensive, although there be no infiltration: such is psoas, lumbar, or iliac abscess.

Infiltration occurs in those cases of suppuration in which, from the want of the formation of a cyst, the pus passes freely, like the serum of œdema, into the cellular membrane of the inflamed part. This infiltration of pus is observed especially in the lung, in which organ abscess is rare: in the liver, on the contrary, abscess is more common, whilst infiltration is seldom seen. Infiltration of the lung is designated the grey hepatization, and succeeds to the red hepatization, or the first stage of pneumonic inflammation.

Suppuration is *diffused*, when it occurs over an extensive surface, as that of the arachnoid, the pleura, the pericardium, the peritoneum, the tunica vaginalis testis; but, even in this case, the space containing the pus is sometimes circumscribed by the adhesion of adjacent portions of the peritoneum; for example, the pus may at length point externally, or make its way into the intestine, or the vagina. In the first case, the abscess may be opened without the risk of exposing the general peritoneum. This event I have seen repeatedly after parturition and abortion. A similar event sometimes occurs from the state, office, and anatomical character of the caput cæcum coli, and has been described by Dupuytren.

The distinctive characters of pus are its opacity, its peculiar pale straw colour, and its globular structure. Its globules are seen in the microscope; and they are made manifest by viewing the liquid between two portions of common plate-glass, placed between the eye and a bright point of light: irides, or rings, of the different hues of the rainbow, are immediately obvious. This is the experiment of the late Dr. Young, and proposed by him as a distinction between pus and mucus. The subject deserves to be pursued: opaque puriform mucus, true pus from ulcerated and unulcerated (serous) surfaces, tubercle, &c., should be compared. The globules of pus are supposed, by M. Gendrin, to be those of the blood deprived of their red colouring matter, and somewhat enlarged and deformed. Dr. Hodgkin and Mr. Lister, on the contrary, think that the globules of pus and of blood are totally dissimilar. This, and other topics connected with inflammation, still present objects of interesting inquiry. The globules of pus, more or less numerous in different cases, float in a transparent albuminous fluid.

The *signs* and *symptoms* of suppuration are interesting and important subjects of inquiry.

As external inflammation passes into suppuration; the pain becomes greater and more throbbing or pulsating; the skin becomes of a deeper red colour, smooth and glossy; and at length one point, more prominent than the rest, yields to pressure, and presents the phenomenon of fluctuation, whilst its firmer borders, by which it is circumscribed, are distinctly traceable by the finger.

The symptoms attending and denoting suppuration are, frequently, very peculiar; they consist in rigor or successive rigors. Sometimes one rigor only occurs; sometimes several rigors occur, at uncertain periods; in other cases the rigors are repeated at such regular quotidian, or tertian periods, as to lead to the idea that the case is intermittent fever or ague. I need not notice the caution

in the diagnosis which this important fact suggests.

In other cases, suppuration takes place, equally unknown and unsuspected by the patient and the physician, from the absence of the usual signs and symptoms. It is latent until the abscess points. Psoas abscess is an apt illustration of this fact. The fact itself has suggested the question, whether suppuration may occur without previous inflammation.

Instead of the secretion of pus, inflammation sometimes leads to *gangrene* and to *sphacelus*. The former of these terms is conventionally employed to designate the condition of the part when it is on the point of losing its vitality; the latter, to denote that of a part absolutely dead, and ready to pass into a state of decomposition. The part affected with gangrene may recover; the sphacelated part is already deprived of any vital function, and either dries, or putrefies.

As a part affected with inflammation passes into the state of gangrene, its colour, from being of a vivid red, assumes a livid, mingled red and purplish hue; its tension and elasticity diminish, and yield to a doughy state, compared to a quagmire, frequently with vesications or bullæ; its pain subsides and there is a loss of sensibility: as the gangrene passes into actual sphacelus, there are total insensibility, coldness, and discoloration, and loss of cohesion between the cutis or cuticle, and the subjacent parts, and between those different parts themselves, and decomposition speedily follows. In fortunate cases, Nature effects, first, a line of demarcation, and then a total separation, between the living and the sphacelated parts.

The part which thus loses its vitality is sometimes limited, sometimes diffused; of the former we have examples in the slough formed in the centre of a carbuncle, and in the circumscribed gangrene in the lung; of the latter, we have examples in the mortification of a whole limb from a violent injury, and in diffused gangrene of the pulmonary structure.

Some parts are more liable to lose their vitality than others: the extreme parts of the body in general, tendons, &c., are of this number.

Some conditions of the system dispose to mortification: typhus fever is frequently attended by mortification of the parts on which the weight of the patient principally presses in bed, as the sacrum, and of the parts to which blisters have been applied; in this fever, perforation of the small intestine occasionally occurs, probably from the same constitutional disposition.

The operation of some external causes of inflammation lead to gangrene: one of these is *cold*; chilblain, in the aggravated form of frost-bite, presents an example of this influence. Another example of this kind is afforded by the inoculation of certain poisons: in one case an insect stung the under lip; inflammation and mortification speedily followed.

Such are some of the forms of gangrene and sphacelus occurring in cases of inflammation. These morbid, or rather deadly, states, occur under other circumstances—chiefly of obstructed, or debilitated circulation, independently of inflammation, as will be particularly noticed in a subsequent part of this course. The gangræna senilis, from disease of the arteries of the lower extremity, and the dry gangrene induced by the ergot of rye, afford examples of mortification unconnected with inflammation.

Nothing can illustrate the varied phenomena of inflammation, on a minute scale, better than the variolous pustule. At first, we have simple inflammation—inflammation of a sebaceous gland—redness and tumour; on the third and fourth days, we have the effusion of *serum*, a vesicle; the duct of the gland tying down its centre; on the fifth day, we observe the effusion of *pus* around this central point, and within the external margin of the vesicle, the intervening space being occupied by transparent serum, and appearing of a red, flesh-colour, well contrasted with the opaque pus, and there is a surrounding areola of deep inflammation; on the seventh or eighth day, the serum is entirely replaced by pus; and on the eighth or ninth, the central duct has been absorbed, or has sloughed, and the pustule is orbicular. There is also the early effusion of *lymph*; and, at a subsequent period, it is found that a portion of the cutis vera has *sloughed*. The whole of this series of the phenomena of inflammation is followed by *cicatrization*, again implying the effusion of *lymph*.

VI. *The Symptoms in Inflammation.*

By the symptoms in inflammation, I mean the affections of the *general* system, as distinguished from those of the *part* immediately subjected to the disease; they require to be traced in reference,—

1. *To Inflammation.*
2. *To Suppuration.*
3. *To Gangrene.*

In acute *adhesive* inflammation, the beat of the heart and of the pulse becomes stronger, and generally more frequent than natural; there is frequently rigor; but there is, generally, little or no heat of skin, no headach, or vertigo, no muscular tremor or debility, no alteration in the secretion of the urine; in a word, scarcely any of the symptoms which characterise fever; but there is augmented power to bear the loss of blood.

Suppuration is frequently announced by a new, severe, and perhaps repeated, rigor. Sometimes it requires much skill to distin-

guish the general affection in suppuration from intermittent fever; for paroxysms of rigor, heat, and perspiration occur in various succession.

Gangrene is depicted in the collapsed condition of the countenance, and of the general system; paleness, and cold, clammy, perspiration, and sunken features; a similar condition of the general surface and of the extremities; sub-delirium; tremor; oppression; sickness; a dry, brown tongue; sordes on the teeth; a feeble, thread-like pulse: such are the typhoid symptoms which denote the occurrence of gangrene.

The next subject which I propose to bring before you is one of intense interest,—one of the most beautiful and important in pathology,—viz., that of

VII. *Inflammation, as modified by the different Tissues.*

To Hunter and Carmichael Smith, in this country, and to the illustrious Bichat, in France, we owe our knowledge of the respective properties of the different tissues, which constitute the frame-work of the animal economy, or *general anatomy*.

The modifications impressed upon the actions of inflammation, by variety in the textures of the parts, are of the most important and interesting character. The textures, to be particularly noticed in this place, are the following:—

1. *The Serous Membranes.*
2. *The Mucous Membranes.*
3. *The Cellular Tissue.*
4. *The Parenchymatous substance of Organs.*
5. *The Fibrous Tissues; and especially,*
    1. *Tendon;*
    2. *Cartilage;*
    3. *Ligament.*
6. *Bone.*
7. *The Cutaneous Texture.*
8. *The Textures of*
    1. *The Arteries;*
    2. *The Veins;*
    3. *The Absorbents.*

Inflammation of the serous membranes, in its earliest stage, and in its lowest degree, is marked by redness; and this, when carefully and minutely examined, is found to consist in points, stars, and arborescent forms, arising:—1, from enlarged vessels, and 2, from extravasated portions of blood.

Sometimes, although rarely, there is dryness of the membrane from checked secretion.

Far more generally there is augmented effusion from the surface of the inflamed membrane. This effusion consists,—1, of serum, or limpid, fluid albumen; 2, of coagulable lymph, albumino-fibrine, in layers spread over the surface of the membrane, or adhesions between its contiguous surfaces, as in the annexed representations of adhesions of the pleura, from Baillie:—

sometimes of albumino-fibrine of a deep-red colour, from the presence of the colouring matter of the blood; 4, of pus, or puriform fluid; 5, of sanguineous serum.

The adhesions of which I have spoken, are sometimes little coherent; sometimes they are firm and tenacious; they are close or elongated; and they are frequently organised and minutely injected by newly-formed vessels, and even the seat of new disorganisations, as pus, tubercle, &c.; at length they resemble the true cellular, or serous membranes, themselves.

The last character of inflammation of the serous membranes is a most important, although a negative one; it rarely leads to ulceration, and, when it does, contiguous surfaces have generally contracted adhesions, through which the ulceration proceeds.

How different from these are the usual phenomena of inflammation, when this attacks the mucous membranes.

There is, however, still, in the first stage, augmented redness and injection, with enlarged blood-vessels, as is obvious in inflammation of the conjunctiva.

In the next place, augmented secretion of transparent mucus is observed; but this gradually becomes opaque and puriform; and it reassumes its transparent character as the inflammation subsides. These changes are familiar to us in bronchitis. In some instances the mucus is tinged with blood, an appearance frequently seen in bronchitis, and almost constantly in colitis or dysentery.

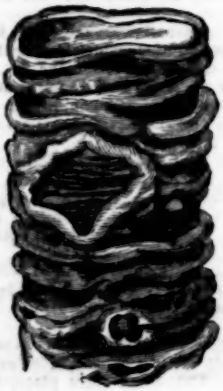
In inflammation of the mucous membrane we rarely see the exudation of coagulable lymph. This event takes place, however,

in the trachea, in croup; and in the uterus, in dysmenorrhœa; and assumes, in each case, the form of a false membrane; it also occurs in extreme cases of inflammation of other mucous membranes; it was induced, in an experiment of Hunter, by injecting a solution of the oxymuriate of mercury into the vagina of an ass.

In these respects, inflammation of the mucous membranes resembles that of the serous membranes; but there are other phenomena in regard to which these membranes are, happily, diametrically opposed to each other.

It is a frequent event for the inflamed mucous membrane to undergo the change termed softening, or ramollissement; this is observed especially in the stomach and in the intestines.

Another frequent consequence of inflammation of the mucous membranes, is ulceration. This event is common in inflammation of the mucous lining of the stomach, and especially of the intestines.



Before I proceed to detail the phenomena of inflammation in the other textures, I shall adduce, at length, several most interesting illustrations of those of serous and mucous membranes; and then I will suppose these properties reversed, and imagine what fearful consequences would arise. But these topics must be reserved for my next Lecture.

CASES IN ILLUSTRATION

OF THE TREATMENT OF

FRACTURES OF THE LOWER EXTREMITY,

AS PURSUED

BY MR. LISTON,

AT THE NORTH LONDON HOSPITAL.

By T. Herbert Barker, *Esq., late House-Surgeon to the Hospital.**

SIMPLE FRACTURE OF THE TIBIA AND FIBULA.

Case 1.—John Malpus, ætat. 12, admitted under the care of Mr. Liston, July 1, 1835. He slipped down whilst running, with the right limb under him; was unable to raise himself; brought to the hospital, when the tibia and fibula were found to be fractured in the upper third of their length. M'Intyre's apparatus was applied.

July 25. The splint (M'Intyre's) was removed, and pasteboard splints were applied for a few days.

29. Discharged cured.

Case 2.—William Giggins, aged 45, admitted under Mr. Liston, August 11, 1836. He was stepping over some loose bricks, which gave way, when he fell, with his left leg under him; he was conveyed to the hospital, and the tibia and fibula were observed to be fractured nearly transversely, about the middle of the leg. A fragment of the tibia was found to be loose, and there was slight displacement, with considerable swelling. M'Intyre's apparatus was applied, and the limb raised by means of a block under the foot.

16. In consequence of the subsidence of the swelling the bandages were loose, and they were re-applied.

Sept. 16. The apparatus was removed, and firm union ascertained to have taken place. Pasteboard splints applied.

24. Discharged; able to walk without the least assistance.

COMMINUTED FRACTURE OF THE TIBIA AND FIBULA.

Case 3.—Peter Toms, aged 47, admitted under the care of Mr. Liston, October 19, 1836. When working on a scaffold it suddenly gave way, and he fell to the ground, a

* See Lancet, Oct. 14, 1837.

distance of about eight feet, and a thick, large scaffolding plank fell upon his left leg. He was carried to the hospital immediately, and the tibia and fibula were found to be fractured in the lower third of the leg, and two or three fragments were felt at the seat of fracture; one piece of bone was retained in the proper situation with difficulty, from strong muscular action: it was at last effected, however, by an assistant pressing firmly upon it, and another passing a bandage over it. He felt great pain on admission, and great swelling speedily came on. M'Intyre's apparatus was applied to the limb, when he experienced immediate relief.

Nov. 21. There is a small sore on the heel, from its resting upon the apparatus. Water-dressing to the sore; the foot directed to be better supported by the tapes attached to the foot-boards.

30. His general health is not very good; he is rather feverish; was ordered saline medicines.

Dec. 12. The splints were removed, but the union is not very perfect. The leg is rather curved forward, at the seat of the fracture. The sound leg is short, and curved anteriorly, but the fractured one rather more so; and in consequence Mr. Liston considered it advisable to re-apply the apparatus, and to insert some small pads between the leg and the splint, above and below the fracture, to correct the curvature anteriorly. He is better in his general health; the heel is still dressed with water-dressing.

16. The splint was officiously removed yesterday, and, in consequence of the interference, the limb is in a worse condition than on the day of the last report, the bones being more moveable at the seat of the fracture. The splint was re-applied, and the bandages were moistened with a thick mixture of gum arabic and water as they were applied. The heel is easily dressed, a space being left between the pad, which is situated beneath the fracture and the foot-board, so that there is no pressure upon the heel.

20. He complains of pain in the heel, and there is a small superficial slough in the centre of the sore.

24. The small slough has come away; the bandages have not been disturbed.

Jan. 4. The sore on the heel is cicatrizing.

12. The heel is quite well; the bandages and splint were removed, and the fracture found to be firmly and straightly united; pasteboard splints to be applied for a few days.

21. Discharged cured.

Case 4.—Edward Lightfoot, ætat. 33, admitted under Mr. Liston, October 20, 1836. Whilst jumping upon a pavement he stepped upon some orange peel, and fell with his leg under him; he states that he heard something crack, and felt great pain in the fractured part. He was brought to the hospital, when the nature of the injury was quite evident to the eye; the tibia was fractured at its lower third, and the sharp edge of the lower fragment was almost projecting through the skin. The fibula was found to be fractured higher up, about its middle. There was a slight abrasion of the skin at the inner ankle. M'Intyre's apparatus was applied, and water-dressing to the abraded surface.

Nov. 5. He is walking about the ward to-day, the apparatus still applied, with the aid of crutches.

15. He continues to get up daily, and walk about a little by means of crutches.

28. The apparatus was removed, and pasteboard splints were applied.

Dec. 6. Discharged; the leg is of the same length and form as the one which has not been fractured.

Case 5.—Jane Green, aged 54, admitted under the care of Mr. Liston, November 20, 1836. Whilst in a shop a board gave way, and her left leg fell into the opening, and she fell upon the right side, with the right leg bent under her; on being lifted up the right foot was observed much deformed, and she was unable to bend it. She was immediately conveyed to the hospital. The inner malleolus was found to be broken off; the fibula was fractured transversely about three inches above the external malleolus, the foot being considerably inverted. The direction of the foot was corrected, bandages were applied, and the whole limb placed upon M'Intyre's apparatus.

Nov. 26. She complains of pain in the ankle, and cannot sleep in consequence of it; the bandages were tight, considerable swelling having occurred, and they were loosened, which was followed by considerable relief.

Jan. 12. Pasteboard splints are applied, and she sits up every day. She complains of stiffness of the knee; she frequently complained of pain in the ham whilst the apparatus was applied, which was relieved by placing soft lint between it and the splint.

20. She is going on very favourably, and will leave the hospital in a few days.

Case 6.—Mary M'Carthy, aged 53, washerwoman, admitted under the care of Mr. Liston, Dec. 17, 1836. She was thrown down in Holborn, when passing over a rope, extending from a brewer's dray to a cellar; she fell on her right side, with her leg beneath her, and was conveyed to the hospital immediately, when the leg was placed upon M'Intyre's apparatus.

Jan. 5. No untoward symptoms have presented themselves.

Feb. 2. Discharged cured.

Case 7.—Alfred Oxborough, aged 16, admitted under the care of Mr. Liston, on

January 5th, 1837. He fell upon the ice whilst sliding; was unable to rise, and having been taken home, a medical man was sent for, who could not detect any fracture in consequence of the extent of the swelling, and applied cold lotions. In two days afterwards he was conveyed to the *North London Hospital*, when Mr. Liston detected a fracture of the tibia and fibula in the upper third; the leg is very much swollen, and he suffers much pain; it was placed in a good position, bandaged, and placed upon M'Intyre's apparatus, and he felt great relief from the pain.

7. He is quite at ease.

10. The bandages are much loosened, the swelling having gone down; removed and re-applied.

Feb. 10. Pasteboard splints were applied; the limb is quite straight. He gets up every day.

21. Discharged cured.

COMMINUTED FRACTURE OF THE TIBIA AND FIBULA.

Case 8.—George Goodman, æt. 32, admitted February 7th, 1837. "Navigator" on the Western railroad. Whilst he was filling a waggon with clay and gravel, a bank five feet high, which was undermined, suddenly gave way and thrust him against the wheels of the waggon; being found unable to walk, he was carried in a cart to the station. At the moment of his arrival, a cart happened to pass which was coming to London, a distance of eighteen miles, he was placed in it, without any bandages being applied, and was brought into the hospital in the night. A comminuted fracture of both bones of the right leg was discovered; there was immense swelling, and he suffered great pain; the leg was placed upon one of Mr. Liston's splints, and he suffered much less pain after its application.

Feb. 8. He suffers much pain to-day, and is somewhat feverish. House medicine ordered to be taken immediately, and repeated every four hours, if necessary.

12. Quite free from pain.

24. He walks about with the aid of crutches, keeping the end of the apparatus from the ground by means of a band passing around his neck, and attached to the lower end of the apparatus.

March 24. The splint was removed. The limb is of excellent form and length. Pasteboard splints were applied.

April 4. Quite well. His fractured limb is able to support the weight of his body.

6. Discharged.

Case 9.—John Harris, æt. 35, admitted under the care of Mr. Liston, January 6th, 1837, of full habit of body. About four days ago, he was "jumping Jim Crow," whilst in a state of intoxication,—this jump being a pretty good test of a man's ability to maintain his equilibrium when drunk, and the subject of the experiment on the present occasion, not being capable of preserving his balance during the performance, fell to the ground, and being unable to rise, he was conveyed home, when a medical man was sent for, who applied some slender wooden splints, connected together anteriorly by loops of tape, by means of which he applied cold lotions. The man became feverish, restless, and, at last, incoherent in his conversation. When requested by a friend of the patient to visit him, I found him furiously delirious, and kicking his legs about; the wooden splints which were applied, not in the least protecting the fractured limb from the effects of such violence. The leg was much swollen and discoloured, and apparently in a very uncomfortable condition, the clothes, splints, and bed-linen around being soaked with the cold lotion. In that state I sent him to the hospital, where we immediately applied Mr. Liston's splint, placed a high block under its extremity, and administered aperient medicine. These things done, his head was directed to be shorn, and linen, dipped in cold lotion, applied.

7. He passed a very restless night, having several times attempted to get out of bed; he has been frequently raving. The leg is in good position; only some of the bandaging around the thigh a little disarranged. His bowels are open. Cold has been applied to his head. He is more tranquil to-day. Low diet.

8. He is more rational to-day than he has been since his illness; he complains of pain in the fracture, and asks where he is, not having been sensible of his removal. He wishes the application of cold to his head to be discontinued.

10. He has been gradually improving since the application of the apparatus, and is now perfectly sensible. The outer bandages were removed and reapplied in consequence of the diminution of the swelling.

24. He now gets up every day and walks a little by means of crutches.

Feb. 8. The apparatus was removed; the limb was quite straight, and of the proper shape. Pasteboard splints were applied.

20. Discharged cured, and firmly resolved never again to attempt to "jump Jim Crow."

Case 10.—John Mason, æt. 7, admitted under the care of Mr. Liston, May 5th, 1837. He was climbing over some iron railings, when his left foot became, fixed between the rails and he fell hanging by his leg. He was immediately conveyed to the hospital, when very great deformity was observed. The tibia and fibula were found to be transversely fractured, about a quarter of an inch above the ankle joint. The transverse fractured edge of the upper portion of the tibia was almost

projecting through the integuments on the inner side of the leg; beneath this projection was a depression; on the fibular side of the limb, the lower fragment of the fibula projected, and above it was another evident depression. Indeed, the deformity was so great as, at first sight, to appear much more like that attendant upon a dislocation than upon fracture; but, upon closer examination, the sharp defined edges of the bone, and the position of the malleoli, could admit of no doubt as to the nature of the injury. Slight extension and counter-extension easily returned the displaced bones to their proper situation. There was no swelling, the lad being brought to the hospital immediately after the accident, and but little pain. The limb was placed upon one of the smaller of the new splints.

June 10. The apparatus was removed and pasteboard splints applied; he has walked about the ward with the apparatus applied for some time.

21. Discharged cured.

Case. 11.—Michael Carey, aged 22, admitted May 8th, 1837, under Mr. Liston. A stout muscular man, who worked upon the railroad, was brought into the hospital late one evening, in a state of intoxication. The persons who brought him could give no account as to the manner in which he received the injury; they stated that they found him by the railroad alone, and with his leg broken. Upon examination it was found that the tibia and fibula of the right leg were fractured; there was slight swelling around the ankle joint; the fibula was broken about three inches above its lower extremity, and the tibia splintered perpendicularly into the joint, that portion of it to which the fibula is articulated being splintered off from the shaft of the bone. There was no evident displacement. The usual apparatus was applied.

10. In consequence of a little tendency of the foot outwards, I placed a pad on its outer edge, and confined it in that position by the bandages around the foot. Directed to take some house medicine.

June 20. Discharged cured. He complains merely of a little stiffness in the ankle joint.

SEVERE COMMINUTED FRACTURE OF THE TIBIA AND FIBULA.

Case 12.—Thomas Ward, aged 41, horse-keeper, admitted under the care of Mr. Liston, August 8th, 1837. When he was riding rapidly round a corner, his horse stumbled, and fell with and upon him; he arose immediately, but was unable to stand upon his right leg. He was conveyed to the hospital, and the tibia and fibula were found to be considerably comminuted in the lower third of the leg; the integuments were much bruised, but not wounded.

There was a lacerated wound about an inch in length above the right orbit, and reaching the bone. The limb was immediately placed upon the new splints; the supra-orbital wound was dressed with warm water.

9. He expresses himself very comfortable.

17. The leg is free from pain. The right side of the face is attacked by erysipelas. *Mercury with chalk*, gr. viii., immediately. —*Tartrate of antimony*, gr. ¼; *tartrate of potash*, ʒj.; *water*, ʒj.; every four hours.

18. The erysipelas is extending. Mr. Liston made several punctures.

29. He is quite recovered from the erysipelas.

Sept. 1. The leg is in good position; he has no pain.

12. In a few days the apparatus will be removed, and the pasteboard splints applied in its stead.

Having described the apparatus which has lately been introduced into practice by Mr. Liston, its application, and a few of the cases of fracture of the bones of the leg, which have been treated in the hospital, I will now refer to a few advantages which that apparatus possesses over the one which was originally introduced by Mr. M'Intyre, of Newcastle.

First. By an improvement in Mr. Liston's apparatus, there is a space to admit the heel. It was frequently observed that abrasion of the skin of the heel occurred from the pressure to which that part was subjected, in consequence of the unyielding plate of iron beneath the paddings; indeed, extensive sloughing *has* occurred, and slight sloughing occurred in one of the above-related cases. (See case 3.) To remove this inconvenience Mr. Liston has left a space for the protrusion of the portion of the cushion beneath the heel.

Second. The same remarks apply to the angle of the splint at the knee joint. Abrasion of the cuticle, and pain, and great inconvenience, I have known to depend on the use of M'Intyre's apparatus; but, in the new machine, the lower end of the thigh-plate, and the upper end of the leg-plate, are ovally cut out, presenting, when hooked towards each other, a large space behind the knee joint, and at once effectually preventing all the pain and stiffness complained of.

Third. In the new apparatus there is not a sliding thigh-piece, because it is not adapted to fractures of the femur, as we have before seen; but thigh-pieces of different lengths can be applied to the leg-piece with very little trouble.

Fourth. The foot-board is more steady, and can be shifted more readily; inclined so as to bend or extend the foot, or increase the distance from the knee.

Fifth. The plate which is placed trans-

versely at the end, is moveable, and can be adapted to a surface on a level with the body, or to a block of any height. In M'Intyre's it is fixed.

Sixth. The new apparatus is lighter, and more portable; and, lastly, it is much less expensive; which is, by no means, an unimportant advantage. Indeed, it is so much less expensive, that the practicability of all practitioners possessing so useful an apparatus is not in the least precluded.

In the part of this paper published last week, are the engravings, at page 84, representing the apparatus, as follows:—

Fig. 1, represents the apparatus for fractures of the leg; the screw, the space at the angle behind the knee, and for the heel, the sliding foot-board, and the moveable plate at the end, are shown in it.

Fig. 2, is a sketch of the apparatus and bandage as applied to a limb which had been fractured.*

21, Golden-square, Sept. 19, 1837.

SLOUGHING FROM VACCINATION.

To the Editor of THE LANCET.

SIR:—That vaccination has conferred great good upon mankind, none but the ignorant or inconsiderate can conscientiously deny. In endeavouring to extend or perpetuate that good, some evils are occasionally, not necessarily, incurred, which experience may teach us to avoid. I have seen four infants destroyed by sloughing, produced by vaccination (not performed by myself), three of these died within a few hours after I had seen them; the fourth lingered two months; the wound healed, but the child was subsequently affected with purpura hæmorrhagica, and, finally, with anasarca. One of the other three had been carried to the eccentric old gentleman who had operated upon it; he would not, however, even look at the arm, but merely exclaimed, "Pooh! pooh! go home, and put on a bread-and-water poultice." That child died on the following morning. Three of the four had been vaccinated with several punctures, a dozen or fifteen in each arm. A fifth child I had some difficulty in saving. The arm had not begun to slough, but it was hard, purple, and swollen,—affected with intense inflammation, dependant, apparently, on the large number of punctures it had received.

I have reason to believe that syphilitic disease may be communicated with the vaccine virus.

A popular notion exists that diseases of the skin are often induced by vaccination. I believe that irritability of the skin, and, consequently, a disposition to disease of the skin, are frequently produced by it, but this is not to be considered as an evil; it is, indeed, an advantage, for morbid action is thus determined to the surface of the body, as the more susceptible, or, figuratively speaking, the more vulnerable texture.

Allow me to take this opportunity of repeating an inquiry which I proposed some years since, respecting the treatment of that peculiar and fatal disease of infants, which is especially characterised by the shrill stridulous inspiration, and suffocative spasm affecting the glottis. Would it be justifiable, in a hopeless case, hopeless if treated by ordinary measures, to make an opening into the trachea? If the life of the infant can be prolonged until it has cut twenty teeth, it will generally recover from the disease. I hope some one of your many intelligent correspondents will favour me with a reply. I am, Sir, your obedient servant,

HENRY REES.

45, Finsbury-square, Oct. 5, 1837.

HEREDITARY MALFORMATIONS.—SUPERNUMERARY FINGERS.

To the Editor of THE LANCET.

SIR:—The following singular case may be found interesting to many of your readers, particularly to those who may be sceptic of the doctrine of hereditary malformations:—

Mrs. Welsh, a respectable female, now residing in the town of Gort, in Ireland, has six fingers on each hand. That which occupies the natural situation of the thumb resembles the index-finger; or, in other words, that what ought *to be a thumb*, is a finger of three phalanges, on the radial side of which is the sixth, or supernumerary, digit, precisely similar in size and shape to the little finger, so that instead of fourteen phalanges, and five metacarpal bones, there are eighteen phalanges, and six metacarpal bones. The two metacarpal bones on the radial side seem to be supported by corresponding articulatory surfaces of the os trapezium. Both hands are precisely similarly formed.

The peculiarity in this case, however, does not rest here: she has borne nine children, of which number three boys and one girl laboured under the same deformity, and one son had seven fingers on each hand; the seventh, however, being a mere fleshy appendage, arising from the base of the sixth, was removed soon after birth by operation.

Mrs. Welsh states that her mother told her that she assigned the cause of her unusual supply of fingers to her having received a *fright* whilst she was pregnant, from a man well known at that time in Gort by the name of Tom with the two thumbs. I am, Sir, your obedient servant,

A. G. HORNE, M.D.

Caveley Barracks, Gort, Oct. 1837.

* Errata in the Number of last week:—
For case 13, page 85, read case 9.
For case 15, page 86, read case 11.

IMPROVEMENTS IN FRACTURE APPARATUS.

To the Editor of THE LANCET.

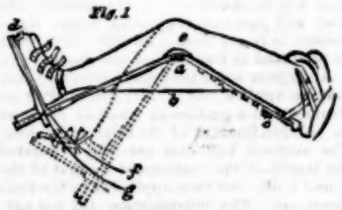
SIR:—The importance of procuring the best mechanical aids in the cure of fracture, is self-evident; but it is much to be regretted that improvement in this branch of surgery has not kept pace with the advance made in other branches. A few remarks on the objects of fracture instruments, the defects of those in present use, and on what are conceived to be important recent improvements in their construction, may not, perhaps, under these circumstances, be unacceptable to the readers of THE LANCET.

Having been engaged for several years in the manufacture of surgical apparatus, having taken some pains to acquire a knowledge of their uses, and seen much of their practical application by eminent surgeons, I have no hesitation in asserting, that the instruments in common use are totally inadequate to their intended purposes, and very little calculated to advance our national reputation, either for surgical or mechanical ingenuity.

The common double inclined plane is a rude and imperfect piece of mechanism, which has been in use for thirty years, and is still used in nearly every hospital, with a degree of pertinacity which, in this age of improvement, is somewhat remarkable. The only recommendation of this instrument is its stability; but this single good is counter-balanced by a host of imperfections. It can neither be adapted to different sized limbs, nor be made to maintain permanent and steady extension. It permits every movement of the patient to affect the fractured bones, and confines him to his bed till perfectly cured. Perhaps the most serious objection, however, is that of the joint of the instrument *moving on a different axis from that of the knee*. Although this, as will hereafter be shown, is a very dangerous defect, it appears to have hitherto escaped observation, for in all jointed instruments, whether intended to cure fractures or stiff joints, we find the same imperfection. Before I point out the evils resulting from it, I will anticipate an argument that may be used in favour of such instruments; namely, that, defective as they are, numerous fractures have been cured by them. It cannot be denied that many fractures have been cured by the use of splints and bandages alone; but the question here is, whether these fractures would not have been cured *sooner* and better by more perfect apparatus? The first object is to effect a cure, a perfect cure, without deformity; and the second object is, to reduce the period of human suffering to the shortest possible duration. In such case, it is obviously the duty of the surgeon to secure both these objects by employing the best mechanical auxiliaries, rather than to leave their accomplishment to chance, by adopting instruments that are not only inadequate to their purposes, but, in some cases, even calculated to *defeat* them.

Mr. Amesbury is entitled to great credit for the excellent methods of treatment he has introduced in cases of fracture. Still, in that gentleman's apparatus for fractures of the leg and thigh, and for anchylosed joints, there are some serious imperfections. I shall endeavour to point these out, and to describe what I conceive to be some important improvements, by which I believe these defects to have been remedied. The following is a sketch of Mr. Amesbury's apparatus for fractures of the lower extremities.

Fig. 1



It will be seen, that the leg and thigh-pieces of this instrument are connected by the rule-joint (*a*), that they can be kept at any angle or in a straight line by the steel bar (*b*), and that they can be lengthened or shortened by the shifting thigh-plate (*c*) and the foot-board (*d*).

This instrument is, in many respects, very superior to other double inclined planes, but it has, in common with them, a joint which does not correspond with the joint of the limb. The reader will observe that the centre of the joint (*a*) is *under*, instead of being *in a line with*, the centre of the knee-joint (*e*), so that the extremities of the instrument, and of the limb, will *move in different circles*, if the angle of the instrument be altered. The immediate effect is that of shortening or lengthening the limb, as the angle of the instrument is increased or diminished.

If the instrument be flexed when on the limb (as in *Fig.* 1), the foot-board, in revolving on its own centre, will move in the curve *d*, *g*, at the same time that the bottom of the foot (if not fastened in the shoe of the instrument) will move in a different curve, namely, *d*, *f*, leaving *a space* between the foot and the foot-board. Let us suppose, however, that, during the operation of flexing the instrument, it be strapped upon a leg fractured in both bones, and that the foot be fastened to the foot-board; what would then be the result? Obviously the

foot would be forced to trace the same curve as the foot-board, from *d* to *g*, and when it had arrived at *g*, the fractured bones would be torn *above two inches apart*.

I do not presume that any surgeon would attempt to alter it to this extent, or that any patient could bear the torture of such a process; but I wish to impress this fact strongly upon the reader,—that, to *whatever* extent the instrument is flexed, to exactly the same extent will the bones be separated.

Again. Suppose the instrument to be applied in the flexed position, in a case of oblique fracture, the foot-board, with the foot attached, having been fixed sufficiently low down upon the leg-piece to keep up extension. Now, it is evident that this extension would be destroyed if the instrument were altered to a more obtuse angle, because, as the foot-board moves in the curved line *g*, *d*, the distance between it and the knee will be shortened. Consequently, *the bones will pass each other*, and render it necessary to re-set them. Similar effects will be produced in fractures of the thigh.

A surgeon some time since informed me, that he applied one of Mr. Amesbury's instruments to a gentleman who had received an oblique fracture of the thigh in hunting. The surgeon had first carefully regulated the length of the instrument by that of the sound limb, and then applied it to the fractured one. The inflammation did not subside, and the patient complained that the instrument pressed very severely under the knee. The surgeon, in consequence, slightly altered the instrument into a more obtuse angle. The pain from the pressure ceased, the inflammation subsided, and the instrument was in due time removed; but, to the astonishment and mortification of the surgeon, the fractured limb was *an inch shorter* than the other. He knew that the positions of the foot-board and shifting thigh-plate had not been altered; in fact, that no part of the instrument had altered, since it had been compared with the sound limb, excepting a slight variation of the angle; and, failing to discover any other cause for the shortening of the leg, he supposed it to have been occasioned by the patient having slipped down in bed. There can be no doubt, however, that this slight alteration of the angle, by diminishing the degree of extension to which the limb was originally subjected, had caused the bones to override each other, and, of course, the shortening of the limb; although it was impossible (from its swollen state) to detect the overriding till it was too late to remedy it

As double inclined planes are in such frequent use, it is not improbable that similar cases have often occurred, as these effects have never, to my knowledge, been previously pointed out.

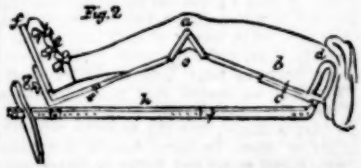
It may possibly be said, that these instruments are not intended to be moved whilst on the limb, and that their inventors knew that these effects would result from so moving them. Such objectors may be asked, how it happens that instruments, which *are* expressly intended to be moved whilst on the limb, are constructed with a precisely similar joint? A pretty strong proof that the inventors of these instruments were unacquainted with the properties of the rule-joint. Indeed, of above 150 surgeons (including hospital surgeons and lecturers) to whom I have demonstrated these defects, not one appeared to have been previously aware of them; and many cases, similar to the above, have come under my own knowledge, where the surgeon has been utterly unable to trace the cause. Even if the surgeon should happen to be aware of the effect of altering the angle of the instrument, and refrain from doing so himself, yet he has no security that the patient will not alter it in his absence, or that it may not even be altered *by accident*, as the following case will show:—

A female had an oblique fracture of the thigh, and the limb was placed upon a common double-inclined plane, at rather more than a right angle. She was subject to fits, and was unfortunately seized by one a few days after the instrument had been applied. In her struggles, the lower end of the leg-piece slipped out of the notch in the frame in which it is generally inserted, and the instrument, with the limb, fell flat into the straight position; the consequence was, that the fractured bones *passed each other about two inches*, and one of them protruded through the skin.

Such cases as the above show the danger of using these imperfect instruments, even if the surgeon should be intimately acquainted with their construction and defects.

Having so fully pointed out the imperfections of the instruments in general use, I will now proceed to describe what I conceive to be some important improvements, by which I am induced to believe the above defects have been remedied. The following drawing is the sketch of an instrument, which I have introduced to the faculty, under the name of "Whiting's *open-joint* apparatus for fractures of the leg and thigh."*

Fig. 2



It will be observed, that the centre of the joint of this instrument (*a*) corresponds

* Invented in 1833.

with the centre of the knee joint, and that, consequently, the extremities of the limb and the instrument will move in the same circle. This instrument also agrees with the limb in being shorter in the flexed position than in the straight position, the opening (o) being diminished in the former and increased in the latter. As this instrument adjusts itself with the nicest precision to the length of the limb at whatever angle, it can be altered without the slighest fear of producing the injuries which I have shown to result from altering every other double inclined plane. Not only is danger thus averted by this property of the open joint, but I think in many cases it may be even used advantageously for other purposes. In fractures extending *into the joint*, for instance, the angle may be gradually altered during union, to prevent anchylosis. I am strengthened in this opinion by the success which has attended an instrument I have invented for fractured elbow, which will be described hereafter.

b (*Fig.* 2.) is the moveable thigh-plate (of which only a section can be seen) by which the thigh-piece is made longer or shorter.

c is a screw, placed on the side of the thigh-piece, to enable the surgeon to fasten the thigh-plate without raising the instrument, which he must do before he can fasten the thigh-plate of Mr. Amesbury's (vide *e*, *Fig.* 1); the screw in that instrument being *under* the thigh-piece.

d, is a padded piece of iron which can be fastened by a screw upon either side of the thigh-plate. It is intended, in oblique fractures, to rest against the pubes, so as to keep up extension. This, it is believed, will remedy the defect so much complained of in Mr. Amesbury's instrument; namely, that of the thigh-plate (which is intended to maintain extension, by *resting against* the tuberosity of the ischium alone) frequently slipping ont of its place (unless the pelvis-strap be fastened injuriously tight), in consequence of the large quantity of muscle round the ischium.

e, the slide by which the leg-piece can be adjusted *exactly* to the length of different legs. The leg-piece of *Fig.* 1 can only be adjusted to certain lengths of half an inch apart, instead of being susceptible of adjustment to *any* length.

f, the shoe-board.

g, the nut and screw by which *f* is fastened to the foot-board. The screw passes through a mortice in such a manner as to enable the surgeon to move the foot from back to front, with the greatest nicety. This precision is unattainable by Mr. Amesbury's instrument (*Fig.* 1). It is highly advantageous in fractures of the lower third of the leg, where it is necessary to afford support to the heel, in order to keep the lower portion of the fractured bones in a line with the upper portions, during union. Another purpose for which the screw may be used, is that of *producing extension*. Suppose that the instrument be applied in a case of oblique fracture, the leg and thigh-pieces having been previously adapted to the length of the sound limb. As the bones ride, of course the foot of the fractured leg will not reach the shoe. By unscrewing the brass nut, however, the shoe is brought to the foot, and having been firmly fastened upon it, the nut is screwed, and the fractured limb gradually extended to the exact length of the sound one. The same mode made may be adopted in fractures of the thigh, the instrument being applied in the straight position.

h, the prop, which connects the leg and thigh-pieces, and keeps them either at an angle, or in the straight position. It may be lengthened or shortened; so that when the patient is allowed to leave his bed, it will assist him in walking, by sustaining the weight of his body.

i, the cross-piece, used to keep the instrument from falling when the patient is in bed. As soon as he is permitted to get up it may be taken off. This cross-piece secures to this instrument the stability of the common double inclined plane, with the portability of *Fig.* 1.

The advantages which, it is conceived, this open-joint instrument possesses over all others, are the following: — It can be adapted with the greatest precision to either of the lower extremities of any adult patient; it can produce, and securely maintain, extension to any required degree; it can be safely altered to, and kept at, any position from a straight line to a right angle, without danger of disturbing the fractured bones; from the use of the prop and the instrument's general portability, the patient, in fractures of the leg, can be permitted to leave his bed in a few days after the accident, and in fractures of the thigh, as soon as the bones are united; and lastly, *there is no injurious pressure produced under the knee.*

I would now wish to direct your attention to Mr. Amesbury's screw-apparatus for stiff joints, of which the following is a sketch:—

Fig. 3

This instrument consists of beech leg and thigh pieces, connected by a rule joint. Its object is that of restoring the flexibility of anchylosed or stiff joints. This object is effected by increasing or diminishing the angle of the instrument, through the means of a swivel-nut and screw (*a*). In order to show more clearly the operation of the

instrument upon the joint, the bones of the knee are exhibited. This instrument has a rule joint, like *Fig.* 1; and is, consequently, liable to the same objections; the only difference being, that the effect is here confined to the knee joint instead of a fracture. I believe that there is no surgical instrument now in use which is more disgraceful to surgical mechanists, more dangerous in its effects, or less adequate to its intended purposes. It may be contended, as an excuse for the imperfections of *Fig.* 1, that it was never intended to be moved while on the limb. Here, however, is an instrument expressly made to be so moved, which not only must fail in curing stiff joints, but would seem as if it had been purposely invented to *prevent* such a cure. When this instrument is applied for the purpose of rendering flexible a *straight* limb, its screw is altogether powerless. Let us suppose, however, that it be applied to a contracted knee, at an acute angle. The mechanical operation required here, is that of making the end of the tibia partly revolve round the condyles of the femur. The limb is strapped tightly to the instrument, and a knee-pad (not shown in the diagram) is bound as tightly as possible over the patella, passing under the joint of the instrument. A very few turns of the screw, when so fixed, produces the most acute pain. How can it possibly be otherwise, unless the straps or the knee-pad give way? The effect produced by turning the screw is *not* to make the tibia revolve round the condyles of the femur, but to press, with great violence, *the articular surfaces of the joint against each other*, precisely in the same mode as that by which walnuts are sometimes cracked in the hinge-joint of a half-open door.

When it becomes necessary to flex the contracted limb, from an obtuse to a more acute angle, of course the opposite effect is produced, namely, the *ligaments of the joint are violently distended*, from the tendency of the instrument to *separate* the bones. This most serious defect is completely remedied by the open-joint, with which I have constructed an instrument, of which the following is a sketch:—*

Fig. 4.

The centre of this joint corresponds with the centre of the knee joint. The motion induced by extending or flexing this instrument, is the *natural action* of the knee; and its use cannot possibly produce the evils pointed out in *Fig.* 3. I know of many cases in which this instrument has been used with complete success, but I think its advantages are so apparent, that it is unnecessary to do more than allude to them.

Perhaps the most successful application of the open-joint has been in an instrument for fractures of the upper arm, *particularly those extending into the joint.* The following is a drawing of an instrument for this purpose, the angle of which can be *altered*, from time to time, *during union*, and thereby *prevent anchylosis*:—

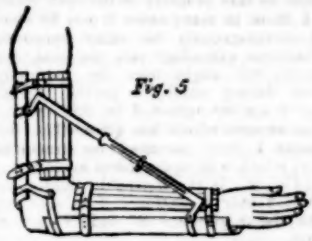


Fig. 5

I now beg to apologise, Sir, for the extent to which this communication has occupied your valuable columns. Most men overrate the importance of their own improvements; and, perhaps, I may have fallen into the same error; but I cannot help thinking that every improvement, however small, which alleviates the pain of the numerous accidents which "flesh is heir to," which increases the utility of charitable institutions, by diminishing the individual pressure upon their funds; and which carries one step nearer to perfection an art in which every human being is interested, is a matter that we should not willingly let die. I sincerely thank you for the facilities you have afforded me for disseminating a knowledge of these humble suggestions in quarters where they may be most useful. Even if *my* inventions are less important than I think them, their extensive publicity in THE LANCET will, at least, excite attention and discussion, and, perhaps, may induce some person better qualified than myself, to suggest improvement where it is now highly requisite. I am, Sir, your obedient servant,

WILLIAM WHITING.

Surgical Mechanist,

15, King-street, Southwark.

* Invented in 1833.

CONTRIBUTIONS TO MEDICINE

MADE AT THE MEETINGS OF THE

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

HELD AT LIVERPOOL, SEPT. 1837.

THE interesting and valuable communications presented to the above Association in the various sections of *Mathematical Science, Chemistry, Mechanics*, &c., led the profession to hope that, at the recent annual meeting (the seventh of this institution), the section of *Anatomy and Medicine* would keep pace with its fellow section in the announcement of discoveries, or, at least, of some improvements or facts which were calculated to advance medical science a few steps on its onward road. But the expectation has proved a fruitless one; and, so far as we can judge from the excellent reports of the proceedings which have appeared in the "Athenæum," and the Liverpool weekly publications, the meetings of the last-named section were as prosy and unproductive as any evening congregation of a London weekly medical society at the dullest season of the year. If the members of our profession connect themselves with a great national scientific body, and go about exhibiting their persons and their names to an admiring public, they must earn the approbation of the critical portion of the crowd whose notice they seem to court, by contributing something worth knowing, for the advancement of that science which they are supposed to represent. The following analysis of the proceedings in the medical section of the Association, while it contains two or three facts of interest, shows how trifling and poor in character were the pretensions of that section.

MOTIONS AND SOUNDS OF THE HEART.

The first subject introduced to notice was the report of the Committee appointed to investigate the motions and sounds of the heart. The Committee concludes, first,—

That the first sound of the heart is *essentially* caused by the sudden and forcible tightening of the muscular fibres of the ventricles when they contract; and, secondly, that the second sound essentially depends on the reaction of the arterial column of blood on the semilunar valves of the arterial orifices at the moment of the ventricular diastole. With regard to the unnatural or morbid sounds sometimes heard in the heart and arteries, the Committee found that they could produce precisely the same sounds in every variety, by impelling, in various modes and degrees, a current of water through India-rubber tubes, or through the arteries of living animals; they also discovered that the same sounds may be produced in the arteries and veins of the living subject, by simple pressure. In conclusion, the Committee referred "the essential, physical cause of the sounds produced by the heart and circulating vessels," to a certain resistance offered to the moving current, leaving the second part of their inquiry incomplete.

The reading of the report which we have just analysed was followed by a desultory conversation between Drs. Copland, Granville, Williams, and James Johnson, upon the "ultimum moriens," and the "bruit de diable," the only fact elicited, during which conversation, was the very remarkable one mentioned by Dr. James Johnson; viz., that when he (Dr. J. J.) was excited by running, or by food, he produced the whole of the strange sounds which are described by French pathologists, which he certainly could not regard as abnormal. It is to be regretted that the learned Doctor left the Association in ignorance of the precise nature of the Johnsonian sounds; when the worthy Doctor runs too fast, he may probably puff more audibly than he is wont when at rest; when he eats too much, he may possibly give vent to one or more sounds resembling, closely enough, a "bruit de diable," but what connexion such sounds can have with his heart we are at a loss to divine; or why they should be deemed normal, except on the teratological principle, that what is abnormal in mammalia often becomes normal in another species, we are equally at a loss to guess.

THE EXPECTORATION IN PULMONARY DISEASES.

After this report, Mr. Brett read a paper on the physical and chemical characters of expectoration in different diseases of the lungs, with some preliminary remarks on the albuminous principles existing in the blood. The simplest idea (says Mr. Brett), that we can form of the blood, is that of a mixture of soluble and insoluble albumen; or, in other words, of serum and crassamentum. In the serous portion albumen may exist under three forms,—1st, Free albumen, capable of being coagulated by heat; 2nd, Albumen combined with soda; 3rd, A

form of albuminous matter, which Mr. Brett names the colourless self-coagulating principle. The crassamentum he also considers as made up of two forms of solid albuminous matter; one capable of undergoing decoloration, by ablution with water; the second incapable of being decolorated by the same process. The former of these substances is commonly called *fibrine*, the latter *red particles*. The author then proceeded to detail the various physical characters of the expectoration in a healthy condition of the lung, and in its varied morbid states.

The matter expectorated in pneumonia is principally made up of a tough, mucoid secretion, mixed with blood; it also differs from most other forms of expectorated matter, in containing no inconsiderable quantity of oxide of iron, derived from the blood which it contains. In phthisical expectoration the matter differs materially in different stages of the disease: in the earlier and middle stages it differs but little from the ordinary expectoration of common bronchitis; but in the latter stage, as might be expected, it possesses the characters of a puriform collection, containing large quantities of soluble and insoluble albumen, with a notable proportion of the oxide of iron. Mr. Brett considers that in no disease, except in phthisis, does the expectoration contain so much soluble albumen, capable of being coagulated by heat; while in pneumonia we have a greater proportion of solid matter to a given weight of expectoration than in any other complaint. Mr. Brett next detailed his experiments on crude and softened tubercular matter, and concluded that the crude tubercle did not differ chemically from solid albumen, or fibrinous matters. Tubercular matter, which has undergone complete softening, is chemically identical with pus, and hence the author deduces that fibrinous matter is, by a process of fluifaction, converted into actual pus, and gives rise to the abundance of albuminous fluid found in the expectoration of persons in the latter stage of phthisis. A quantative analysis of this expectoration gave water; albuminous matter, with some mucus; extractives, soluble in alcohol; ditto, soluble in water; fatty matter; saline matters, consisting of the alkaline chlorides, phosphates and carbonates, with earthy phosphates and oxide of iron.

At one of the meetings of the section, papers were read by Dr. Holland, "on the cause of death from a blow on the stomach;" by Dr. John Reid, "on the functions of the glosso-pharyngeal, pneumo-gastric and spinal accessory nerves;" and by Mr. Carlisle, of Dublin, "on the structure of the sacrum in man, and some of the lower classes of animals," and by Dr. Hancock, and Sir James Murray.

FUNCTIONS OF THE EIGHTH PAIR OF NERVES.

Dr. Reid has performed a great number of experiments upon animals, chiefly dogs, for the purpose of ascertaining the functions of the eighth pair of nerves.

Glosso-Pharyngeal Nerve.

From twenty-seven experiments upon this nerve, the author concludes that it is a nerve of common sensation; that by a reflex action it influences extensively the muscles of the mouth and throat; that it is not the special nerve of taste; and, finally, that the sense of thirst does not depend entirely upon this nerve.

Pneumogastric Nerve, or Par Vagum.

Thirty experiments on this nerve show that severe suffering is generally induced by pinching, or even stretching it; powerful respiratory movements were excited when its trunk was compressed by the forceps.

Pharyngeal Branches of the Par Vagum.

Seventeen experiments prove that these are the sole motor nerves of the constrictors of the pharynx, the stylopharyngeal and palatine muscles; and that the sensitive filaments contained in these branches are exceedingly few, if they exist at all.

Experiments on these nerves indicate that all the muscles which move the arytenoid cartilages receive their motor filaments from the recurrent nerves. That, of the intrinsic muscles of the larynx, only the crico-thyroid muscle receives its motor filaments from the superior laryngeal; and that, consequently, the only change which this nerve can produce upon the larynx, as a motor nerve, is, that of approximating the cricoid cartilage to the thyroid; and that the sensations of the larynx depend upon the superior laryngeal nerve. These experiments completely subvert the statement of Magendie, that the inferior laryngeal nerves supply those muscles only which open the glottis, while the superior supply those muscles which shorten the glottis.

Spinal Accessory.

Cut across in seven dogs at its exit from the cranium: no effect on the voluntary movements of the neck could be observed. In other animals the nerve was first cut on one side, and then a weak dose of prussic acid was given. This was frequently followed by powerful, slow, and regular respiratory movements, during some of which, distinct contractions of the sternomastoid muscle were observed in unison with the other muscles of inspiration.

MALFORMATIONS OF THE CEREBELLUM.

Mr. Carlisle, of Dublin, presented two very remarkable examples of malformation of the cerebellum, upon which he delivered some interesting observations.

In one case, that of a female, of weak intellect, the cerebellum lay completely inferior to the cerebrum, and was not larger than an ordinary sized walnut. The case was a very interesting one, in a phrenological point of view, inasmuch as the organs of reproduction were remarkably well developed. The uterus and fallopian tubes were very large.

The second example was that of deficiency of one half of the cerebellum, while the other half was comparatively small; the subject of this case was known to have possessed strong animal passions. In commenting upon these two cases Mr. Carlisle pointed out the little relation which exists between the size of an organ and the function dependant on it, and endeavoured to show that his cases were subversive of Gall's doctrine.

Dr. Mackintosh read a paper "on the morbid anatomical appearances of some cases of cholera;" which, however, contained nothing that was not previously known on the pathology of that disease.

Sir James Murray presented an account of a machine for removing atmospheric pressure from the surface of the body. All the facts connected with this *modus operandi* have long since been placed before the Profession by Sir James Murray, through the pages of THE LANCET.

Professor Evanson delivered rather an eloquent discourse in favour of phrenology.

LEPROSY.—An paper was presented by Dr. Hancock, on tubercular leprosy, the *lepra arubum*, or *cocobæ* of the Africans, which the Doctor identified as the *ara-apatta* of the Caribs, and the *radisyge* of the northern nations of Europe. This disease is, unfortunately, very prevalent in the West India Colonies and British Guiana. The native Indians of Guiana and Orinoco, among whom Dr. Hancock sojourned during many years, employ, the Doctor says, very effective remedies and modes of treatment in this and other inveterate maladies which at home are regarded as the *opprobria* of the healing art.

Finally, Dr. Warren, of Boston, communicated some highly interesting observations "on the crania of the Mound Indians of the interior of North America."

DR. ELLIOTSON ON CLINICAL INSTRUCTION,

AND ITS IMPROVEMENTS; THE

EMPLOYMENT OF NEW REMEDIES;

GOOD AND BAD EXPERIMENTS, AND

ANIMAL MAGNETISM.

IN his introductory lecture on clinical medicine, this session, at *University College*, Dr. Elliotson made some remarks on the importance of the clinical portion of medical education, and on the propriety of pursuing improvements in the methods and means of treating diseases.

Without the assistance of clinical instruction, he observed, all other branches of medical education must be very imperfect; but, by the addition of this important branch, the advantages were several. First, the student had placed before him individual cases—living illustrations of all that he had heard described in the lecture-rooms. Secondly, he was enabled to test the accuracy of the lecturer's descriptions, and his diagnosis; and to observe the success attending the treatment recommended. (The learned Professor here advocated the connexion of a hospital for clinical instruction with the College.) Had it not been for opportunities of clinical instruction, he (Dr. E.) never would have been able to stand his ground against attacks which had been, from time to time, levelled against him by the idle, the ignoraut, and the envious, because he had always been strenuous in teaching new truths. He had been enabled by means of it to prove the truth of what he advanced, and thus eventually to establish many important facts. For instance, in his employment of particular remedies, attempts had been made to laugh at him. When the stethoscope was introduced into this country, it was called an absurdity, but the students at the hospital in which he was then physician, found that what had been stated of its use was true, and asserted this all over the country, and now the stethoscope was in the hands of almost every practitioner. For his employment of new remedies he had been denominated "an experimenter," but he had always felt it to be his duty to try new remedies, when they came recommended on the authority of intelligent and repectable men; indeed, of what use was it for practitioners to publish their experience of new medicines, if the results were never acted on. The art of practising was better understood now than it had ever before been, and the great means for its further improvement consisted in employing judicious experiments in cases in which, at present, medical men were at a loss for a means of cure, or were dissatisfied with pre-

sent modes of treatment. There was a good, and there was a bad kind of experiment. When satisfied with the remedies already possessed, the trial of new remedies was highly culpable; but the case was different when new remedies came properly recommended for diseases in the present modes of treating which (though more or less successful) we saw that there was still room for improvement; or when all the usual remedies in any case had been employed without any beneficial result. He (Dr. E.), in fact, had not tried twelve new remedies in all his life. He had made very few experiments, compared with many other persons, who were continually trying new remedies, and yet were unknown to the world as improvers, they having no good grounds for their trials. The experiments which *he* had made, had, however, been successful, and, becoming generally known, had given rise to the charge that he was "an experimenter;" although, in fact, he was very slow in trying medicines, for he placed so little confidence in most accounts of new modes of treatment, that it was in general long before he was induced to employ a new one; but when satisfied that there were good grounds for the trial, he went to work in earnest, and thus had been able to communicate to the profession some important facts. He had tried very few, from want of confidence; but, by selecting, carefully he had been successful. Some persons were always trying this and trying that, even in cases where they already possessed good and established means. This was wanton and unpardonable. Such persons never conducted their investigations perseveringly and philosophically; but often went on a little with one thing, then relinquished it, then substituted another for it, and then changed again, as Lord Bacon had said, "quid pro quo substituendo." The first new medicine which he (Dr. E.) tried, was prussic acid, which had come strongly recommended, both from abroad and at home, as a remedy in pulmonary affections. It chanced during his trial of this medicine in *St. Thomas's Hospital* that a patient who was suffering from gastrodynia had this medicine (which was intended for a phthisical patient) administered to him by mistake. The gastrodynia was cured, and it became interesting to know if this cure was accidental, or the result of the administration of the medicine. He consequently gave the medicine to other patients affected with gastrodynia, and the result was the establishment of this medicine as a valuable remedy in this affection. The next new medicine which he had employed was *quinine*. This also came highly recommended, and, after twelve months, he was enabled to give a favourable report of its qualities to the public. Yet for this, at that time, he was laughed at! The medicine, however, was now established. It was a fact worth mentioning, that he had never, in *University College Hospital*, used a single medicine which he had not employed before. *Creosote* he had often employed at *St. Thomas's*; and prussic acid at least fifteen years ago. In short, all the medicines, and all the applications of medicine, which he had recommended, had stood their ground; and because his labours were invariably made known to the profession he was called "an experimenter!" In *this* sense, so long as he lived he should feel it his duty to continue to experiment. He should, as a matter of conscience, try such medicines as came to him well and properly recommended, or when he was not able to cure disease by the usual remedies. He should do with patients just as he would wish himself to be done by,—that is, when all the usual means failed, to give them the advantage of some new remedy, or mode of treatment, which afforded a hope of relief. This was experimenting in a good sense.

In addition to lecturing on every case as it left the hospital, a plan which he had always pursued, he should, for the future, in his clinical lectures, on the admission of each case, relate the particular history of it, point out the present state of the patient, and give his views of the nature of the disease, the treatment that should be adopted, and the prognosis. The students would then be able to test the accuracy of what he said, whether the patient recovered or died. They would never see him employ new means of cure if not necessary; nor would they ever witness experiments conducted by him, unless better means were evidently required than those already in use, or when he was unable to do good at all by their employment. In such cases, and in those in which all our present remedies were powerless, he should, so long as he practised, reflect, and, following the best probabilities he could adopt, give the patients the chance of benefit from those means which seemed most likely to cure the disease, in spite of all that ignorant and lazy persons chose to say on the subject. One new thing, and one only, had he of late tried, and, indeed, that he slightly tried, at *St. Thomas's*, some years ago. He alluded to mesmerism. It had been said that certain motions, made with a certain intention, before patients, had produced certain effects, and the testimony to those effects, and in their favour, was very great. He had thought the subject worthy of being investigated, and he commenced the inquiry many years since at *St. Thomas's Hospital*; but owing to the death of the gentleman who then practised the system, he was unable to prosecute his inquiries into it, but he was satisfied that there was something in mesmerism, and he had again, during the vacation this summer, put it to the test; and he now repeated firmly what he

had declared before, namely, that he was certain that there was something, and a great deal, in it. Not that he believed a ten-thousandth part of what had been asserted respecting mesmerism. He was naturally very incredulous,—a sceptic in matters of various kinds on which most people entertained no doubt: but, from what he had seen of mesmerism, his conclusions were, that certain circumstances which were observed to take place in health and in disease, such as sleep, coma, and somnambulism, might be produced by mesmerism. In things which he had not witnessed he would not place credence; such, for instance, as seeing with the fingers, smelling with the stomach, &c. He never believed in the existence of these, nor professed them, or any other things which were contrary to present experience. He did not believe in the extraordinary effects said to be produced by animal magnetism in Mr. Colquhoun's work on the subject. His experiments had given rise to a series of unfounded statements, and of the exhibition of a malignant and disgusting spirit, which was not worthy of the profession, and which was sufficient to distress a man if he had not a firm confidence in himself, a consciousness of integrity, a love of truth for its own sake, and a perfect indifference respecting all those persons who to ignorance added feelings which were unworthy of men. His opinion of mesmerism, and an account of the opposition with which he had met in his profession from those who should have acted otherwise, and who pretended to be super-eminently respectable, would be found in the next part of his "Physiology," which would appear in a few days. The whole was in type before he left England at the end of August, so that his opinions, at the very time of the credulity imputed to him, might be seen. Those who doubted the reality of mesmerism had only to witness its effect upon the patient now in the hospital with ecstatic delirium. In a very short time after it is begun, she falls asleep for a few moments, and then wakes, with a sigh, in her perfect senses. The process makes no mental impression upon her, for she disregards it, and talks incoherently during the manipulations. The delirium never ceases without mesmerism. She was once allowed to continue in it a week; mesmerism was then performed, and in a few minutes it ceased. He (Dr. E.) defied any one to doubt mesmerism who witnessed that case.

THE LANCET.

London, Saturday, October 21, 1837.

NOTWITHSTANDING the frequent and energetic protestations of the independent medical press, seconded by the voice of the honest and well-thinking portion of the profession, the proceedings at Apothecaries' Hall continue to exhibit that character of ignorance and unfeeling brutality, which has gained for the Examiners universal contempt and execration.

Some persons may think that we have dealt rather harshly with these individuals, but we fearlessly point to the authenticated reports of "Examinations at Apothecaries' Hall," published in the last few numbers of this Journal, in proof, not only that all which we have advanced concerning the Worshipful Examiners is strictly true, but that any language, however strong, must fall far below the standard of expression mete for their unjust and inhuman proceedings. We have every reason to be assured that these reports faithfully represent the atrocities which are being weekly perpetrated at the *den* in Water-lane. They have been furnished by a gentleman familiar with the secret doings of the Company, and, for that reason, most desirous of effecting a reformation which cannot much longer be deferred.

The examination reported in our last Number presents such a specimen of concentrated injustice, and ruthless disregard of even the common feelings of humanity, that we can scarcely command our expressions. Of what stuff are these men made? or have they ever heard of the rule, "Do as you would be done by"? Do they imagine that a student is placed before them merely for the purpose of being intimidated and brow-beaten? Do they think themselves entitled, on account of the *secrecy* of their proceedings, to act as *beasts*, rather than as men, and inflict on the youths placed by *law* under their control, a species of torture,—long-continued

and deliberate torture,—which only wants a slight admixture of bodily suffering to render it more dreadful than any example of cruelty drawn from the animal kingdom.

But the injustice of the acts of the Examiners at Apothecaries' Hall is not less evident than their want of humane feeling and gentle conduct.

A young man presents himself before them for a licence to practise the healing art; he is asked a few general questions upon chemistry; how to distinguish pure from distilled water, by *looking* at them; how many nutmegs go to the preparation of some "spiritus," of which we forget the name; several other demands of equal importance are made, touching the radiation of heat, the Latin root of the word "reflected," &c.; and the unfortunate young man, who, be it remarked, had answered correctly many of these useless interrogatories, is rejected. Not a single question of practical import is proposed, no investigation made of the knowledge which he may have acquired in anatomy, therapeutics, botany, materia medica, or any of the essential branches of medicine. We offer this simple statement, for the meditation of such parents as may contemplate exposing their children to the risk of similar treatment; and we conclude by asking, if any man, however firmly wedded to old opinions and old institutions, can read our last report of "Examinations at Apothecaries' Hall," without being convinced that public examinations, and another tribunal must forthwith be substituted for the inquisitorial interrogatories of an ignorant and tyrannical Board.

When we commenced the publication of this Journal, one of the first principles which met with the most determined opposition from a short-sighted and self-interested coterie, was the right which we claimed of publishing, for the benefit of our professional brethren, the lectures delivered by medical men in *public* medical institutions. The history of this contest is still fresh, we believe, in the memories of most of our readers; the struggle, though fierce, was a brief one; right triumphed over might, and the materials for creating a vast quantity of knowledge, which, until then, remained useless in the wards of the hospitals, like treasures in the coffers of the miser, then, for the first time, were generally diffused amongst the profession. Many of the men who, up to that eventful period, waged against us a "war to the knife," are now compelled to confess that they themselves have reaped, from the publication of their lectures, benefits of the most solid and lasting kind. Strange blindness of human nature! For the last few years publicity has become the element of reputation of all men occupying distinguished stations; far from threatening us with the pains and penalties of the law, for presuming to confer an European celebrity upon our surgeons and physicians, by the publication of their lectures, these gentlemen now feel that their own interests are intimately connected with the interests of society at large, and are now suitors for that publicity which their immediate predecessors affected to regard as the ground-work of their ruin. It were needless to point out, at this epoch, the benefits which accrue to the profession in this country, from the publication of lectures upon the various branches of medical science by eminent individuals, whose talents, qualifications, and acquirements, entitle them to become *teachers*. We are proud to say that, through our instrumentality, these benefits have been extended to a great part of the civilized globe. The invaluable lectures of Sir A. Cooper, which were, for the first time, printed in the earliest numbers of The Lancet, have been translated into most of the modern languages of Europe; Mr. Lawrence's lectures on the eye, and Mr. Wardrop's lectures upon clinical surgery, are now as familiar to the German student as are the works of Rust, of Chelius, of Richter, or of Dieffenbach. Dr. Blundell's lectures on midwifery, notwithstanding the excellent obstetrical works with which Germany abounds, have served as a text-

book upon that subject in several of the German states; and the lectures of Dr. Elliotson, and of Mr. Wallace, of Dublin, have been widely diffused over Europe through the means of translation from the pages of this Journal; and, if possible, still better known are they in the United States of America, and through the whole of the British settlements.

It is a curious circumstance, and one not generally known, that the reform which we affected, about thirteen years since in this country, at a heavy expense, and after long-continued exertions, has been through our means, extended to the capital of the French dominions, after a short and ineffectual struggle on the part of a few short-sighted public lecturers. The march of reform, then, may be slow, but it advances steadily, and the fact which we have just mentioned proves that the example which was furnished by the triumph of principle, in the proceedings of the medical press of this country, has not been lost upon the most enlightened of continental nations.

A few words of explanation upon this latter point may not be ill-timed upon this occasion.

Not content with the spreading abroad, for the benefit of all, the information which our indigenous lecturers vainly endeavoured to shut up in their own class-rooms, we gradually enlarged the field of our labours with the increasing wants of the times, and were the first to publish, from reports taken specially for an English periodical, complete courses of lectures, delivered in Paris, by Messrs. Andral, Lisfranc, Magendie, Broussais, and others. Several of these lectures were quickly translated, from the pages of The Lancet, into two of the European languages, and the conductors f the French medical press began to consider that they might be advantageously employed in giving a wide circulation to the most useful courses of lectures delivered at the *Sorbonne*, at the *College of France*, and at the *Faculty of Medicine*. The members of the medical profession of France are remarkable for their liberal and extended views, but we lament to state, that, on this occasion, several of the most distinguished professors not only refused to countenance the publication of their lectures, but instituted actions at law against the parties, who, like ourselves, under similar circumstances, contended that all lectures delivered on public foundations, and by public professors, belonged, of right, to the public, and could not be suppressed by the capriciousness or selfishness of any set of individuals.

The French law authorities, influenced by narrow views, or permitting, as is too often the case, political feelings to modify thei judgment, decided against the right of publi cation; and this unfortunate fiat would have deprived us of many invaluable contribu tions to medical science, had not the Presi dent of the Institute nobly stood forwar and authorised the publication of his le tures on physiology, delivered at the College of France. The moral effect of this bold resolution of M. Magendie was decisive of the question; the njustice of the judicial decision, thus openly proclaimed by a man holding the highest scientific office in Europe, was felt most forcibly by every enlightened person, and by the prosecutors of the medical press as well, and the judgment of the law courts remained a mere form. The effects of this moral reform are already experienced, and we may henceforward expect a large, and at the same time rich, accession to medical literature, by the uninterrupted publication of the lectures of scientific men in different parts of France.

Entertaining strong opinions upon this subject, we have received, with no ordinary satisfaction, from the hands of the distinguished President of the "Institute," a work bearing the following title: "Leçons sur les Phénomènes Physiques de la vie." The appearance of this work has suggested to our minds the few remarks which we have just offered for the consideration of our readers. This new volume of lectures contains the most recent researches of

M. Magendie on the blood. It is full of original matter, and we shall endeavour to add to the value of the lectures of that Professor, already published in The Lancet, by presenting a carefully condensed analysis of its contents in the forthcoming Numbers of this Journal.

At a late meeting of the *Royal Academy of Medicine*, Paris, there were distributed, by order of the French Government, for the encouragement of vaccination, rewards of £60 to three medical men who had shown themselves most active in the propagation of that inestimable benefit, during the course of the preceding year. Four gentlemen received handsome gold medals; and no less than one hundred persons were rewarded with silver medals. It would be highly desirable that our own Government should adopt some similar measure of encouragement. Numerous accounts from correspondents inform us that small-pox prevails to a very great extent in some of the provincial districts, where, we are sorry to say, vaccination seems to have been neglected in a deplorable manner.

Observations on the Structure and Functions of the Spinal Chord. By R. D. Grainger, *Lecturer on Anatomy.* London: Highley, 1837, 8vo., pp. 157.

Firmly convinced of the correctness of Dr. Marshall Hall's views concerning the reflex function, Mr. Grainger naturally concluded that if a separate function existed in the nervous system, it must correspond with a separate order of nerves. He therefore commenced a series of researches upon this point, and now endeavours to establish anatomically the existence of a spinal marrow which is independent of the brain, and of certain nerves which are exclusively appropriated to the true spinal or excito-motory system.

The work whose title stands above, commences with observations on the structure and functions of the spinal chord. It would have been better, perhaps, had Mr. Grainger taken up the anatomy of the chord in the first instance, and then proceeded from its structure to its functions.

The white fibres of the brain and spinal marrow, are, according to Mr. Grainger, merely conductors of nervous power, the grey substance being the part upon which all the phenomena that are displayed in the cerebro-spinal system are dependant. In support of this doctrine, Mr. Grainger adduces the superior vascularity of the grey substance; its increasing in quantity in the exact ratio of the nervous energy; the deficiency of grey matter at birth, when the intellectual faculties are so low in power; and, finally, the absence of grey matter in the nerves, which are known not to possess the capability of generating power.

Having established this point, Mr. G. passes to the anatomy of the chord and spinal nerves. The first part, which treats of the structure of the chord, appears to us, we must confess, to be not very clearly or distinctly written. One point, however, is worthy of notice. In speaking of the anterior and posterior columns, and their supposed connections with motion and sensation, Mr. Grainger expresses a doubt as to whether any such connections do really exist. He has frequently endeavoured to trace the anterior and posterior roots of the spinal nerves into their corresponding columns, but has never succeeded in his object; they seem, in fact, to be definitely limited by the anterior and posterior lateral fissures.

The following is what appears to be the true arrangement of these roots. After they have perforated the theca vertebralis, and reached the surface of the chord, their fibres begin to separate from each other; some are lost in the white substance, whilst others, entering more deeply into the lateral furrows, are found to continue their course nearly in a right angle with the spinal chord itself, as far as the grey substance, in which they are lost. When the filaments have penetrated into the fissure, they lose their rounded figure, and become flattened, and are then seen passing to the grey substance, at a right angle to the longitudinal fibres of the chord.

In a few dissections, Mr. Grainger has traced these filaments, running, like delicate striæ, in the grey substance.

So much for the fibrils which terminate in the grey substance. The remaining roots

of the spinal nerves are lost in the fibrous part of the chord. Their exact mode of connection, however, with this latter substance is not known.

It results, then, from the researches of Mr. Grainger,

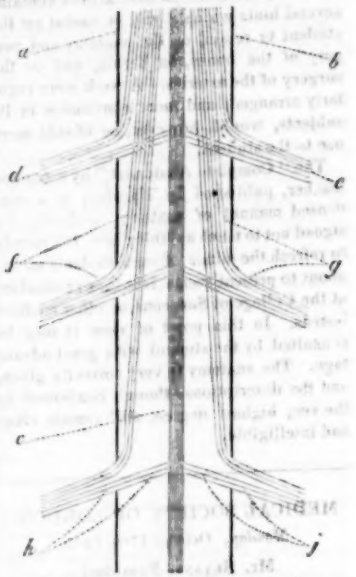
"That the spinal chord is something more that an appendage of the brain; that, in fact, it consists of two structures, not only distinct from each other by their anatomical characters, but, as will more clearly appear subsequently, endowed with totally independent properties. One of these structures consists of the grey matter, confined, not merely to the vertebral portion of the chord, but extending into the cranium, as far as the striated bodies, the optic thalami, and the optic tubercles. Now, it has been shown that the grey substance, in general, is the source of the nervous power; and it is further susceptible of proof, that the portion of that substance which is lodged in the spinal chord, is the source of the peculiar powers possessed by that organ; that, in fact, it constitutes, with the nervous fibres attached to it, the true spinal chord, the existence of which, as a structure independent of the brain, was first declared by Dr. M. Hall.

"The second portion of the spinal chord consists of the white fibres, all of which, after a most complicated disposition, seem to extend to the convolutions of the cerebrum and the layers of the cerebellum; it may, therefore, with propriety be called the cerebral part of the chord.

"The result of dissection further shows, that in the skin and all other sensitive surfaces to which the so-called sentient nerves are distributed, there are, in reality, two orders of fibres essentially distinct from each other; one set terminating in the grey substance of the spinal chord, and the other in the white or cerebral fibres. In the same manner, with respect to the nerves distributed to the muscles, it is proved that each contains one class of fibres running into the grey matter of the chord, and another order ending in its cerebral portion.

"Thus, in the compound nerves of the body, there are, in reality, four instead of two different classes of fibres; and, when the physiology of these parts is considered, it will be made apparent, that these several fibres transmit different impressions: that of those going to the brain, the fibres derived from the sentient nerves, transmit impressions which excite sensation, and those belonging to the motor nerves, volition; that of the fibres attached to the grey matter of the chord, those derived from the sentient nerves, transmit impressions made on the skin to the true spinal chord, the peculiar power of which they excite; whilst those derived from the motor nerves, transmit to the muscles the effects of the power thus excited. Of these four classes, those attached to the grey matter are the incident and reflex nerves of Dr. Hall; and they, together with that matter, constitute the true spinal or excito-motory system."—p. 45 to 47.

The accompanying plate illustrates Mr. Grainger's views. It represents a plan of the spinal chord and spinal nerves, and shows the arrangement of the grey and fibrous structures in profile.



a, Anterior surface of the chord; *b*, posterior surface; *c*, grey matter; *d*, anterior or motor root of the spinal nerve, dividing into two orders of fibres; *e*, posterior, or sentient root, dividing into two orders of fibres; *f*, cerebral fibres of the anterior root, or pure volition fibres; *g*, cerebral fibres of the posterior root, or pure sensiferous fibres; *h*, spinal fibres of the anterior root, or reflex fibres; *j*, Spinal fibres of the posterior root, or incident fibres.

This is as clear an account of Mr. G.'s anatomical discoveries as we can derive from his work, and present in an analysis to our readers. The portion of the volume which follows that which we have just condensed, treats of the physiology of the spinal chord; of the functions of the sympathetic nerve; and of the theory of muscular action; but for Mr. Grainger's views upon these points we must refer our readers to the work itself, which will repay them for an attentive perusal of its contents.

The Complete Anatomist, &c.; or, Anatomical Manual for the College of Surgeons. By a TEACHER OF ANATOMY IN LONDON. Highley, Fleet-street.

Memoranda for the College of Surgeons. By ROBERT DRUITT. Renshaw.

THESE works are pretty nearly of the same size, shape, appearance, and price, and as they are duodecimos, one notice may fairly enough answer for all.

The memoranda of Mr. Druitt contains several hints which it will be useful for the student to retain, on the anatomy and surgery of the bones, on hernia, and on the surgery of the arteries. A work more regularly arranged, and more continuous in its subjects, would, however, be of still more use to the student.

The "Complete Anatomist," by a London teacher, published by Highley, is a condensed manual of anatomy, evidently designed not to teach anything new, but merely to refresh the minds of such students as are about to present themselves for examination at the College of Surgeons, or other medical boards. In this point of view it may be consulted by the student with great advantage. The anatomy is very correctly given, and the descriptions, though condensed in the very highest degree, still remain clear and intelligible.

MEDICAL SOCIETY OF LONDON.

Monday, October 17th, 1837.

Mr. BRYANT, President.

VACCINATION IN HOOPING-COUGH.—VACCINATION AND VARIOLA.—DISEASE OF THE HEART.

MR. WHITMORE stated, with regard to his communication last week, respecting pertussis, and its cure by vaccination, that he had employed it in about seventeen or eighteen cases. The ages of the little patients varied from two months, to three and four years. He vaccinated gratuitously, and did not see the patients under a week; at the expiration of that time he always found the cough considerably mitigated or cured. He had found, on referring to his notes, that he had once tried re-vaccination, but it did not succeed. After vaccinatica in this affection he never gave any instructions to keep the child in one apartment.

Mr. BLENKAIRNE had noticed that children, when very young, about the ages of Mr. Whitmore's patients, had suffered from cough depending on dentition; and which parents might easily mistake for pertussis. He had found that treating it as a simple cough soon effected a cure. Mr. Whitmore had, no doubt, satisfied himself that his cases were undoubtedly hooping-cough.

Dr. SHEARMAN said that at the last meeting of the Society, an opinion had been broached that cow-pock and variola were identical diseases. A Swedish physician had attempted to prove this to be the case, by an experiment, in which he says he produced variola in a cow, by rolling round her the blanket which had covered a man who had suffered from small-pox. The symptoms under which the cow laboured, and the precise character or situation of the eruption had not been described; so that the experiment went for nothing. What could be a greater proof of the non-identity of vaccinia and variola, than the preventive power the former possessed over the latter. For one disease to act as a preventive to another, it required that it should be of an opposite character. Besides, who ever produced vaccinia by variolation, or variola by vaccination?

Mr. DENDY thought, that though vaccinia and variola were dissimilar, that variola and the varioloid disease were alike. The most interesting question to decide, and the one which most affected the public welfare, was the relative controlling power of vaccination over small-pox; and a primary attack of the latter affection over its secondary appearance. He had always found vaccination modify small-pox, though he had never found the primary modify the secondary attack of variola. He well remembered a striking instance of the latter. He was called to see a child with confluent small-pox, whom he had seen as a dispensary patient twelve months before, and who, at that time, was affected with variola, the marks of which covered her. This secondary attack proved fatal. The sister, who had been vaccinated, slept with this patient even the day before it died, and this child had only five varioloid eruptions on the arm, which dwindled on the fourth day.

DISEASE OF THE HEART.

Mr. BLENKAIRNE inquired of Mr. Dendy how he accounted for the cure effected in the following case. He (Mr. B.) had dined twelve months since with a gentleman who, for a year before, had been subject to violent palpitation of the heart, frequent fainting fits, and great depression of spirits. His pulse was strong and throbbing, and intermitted at every third beat. The diagnosis which he (Mr. B.) had given, was that the heart was organically affected, and this opinion coincided with that of other practitioners who had been consulted on the case. The patient, a short time since, went to Brighton, where he stayed a month, during which time he was attacked with gout.

He had since suffered neither from palpitation, fainting fits, or depression of spirits; his pulse was now perfectly natural in every respect, and only 60 in the minute. His health is now excellent.

Mr. DENDY was inclined to think that there had been metastasis in this case, and not that one disease had been cured by the supervention of another of a different character. He thought it might be probable that the attack at Brighton partook more of the character of rheumatism than of gout, and that its occurrence had the effect of relieving the disposition to that disease in the pericardium, which interfered with the heart's action. He believed he was right in stating, that after the removal of the steatomatous tumour from the head of George the Fourth, the wound seemed to be going on well for a few days, when it began to discharge a quantity of ichorous matter, and erysipelas made its appearance. An attack of the gout coming on altered the character of the sore, the discharge improved in quality, and the wound rapidly healed.

Mr. CLIFTON was inclined to account for the cure in Mr. Blenkairne's case, in another manner. He had seen cases where disease of the heart had set in with the most alarming symptoms, which, however, disappeared as the heart accommodated itself to the affection, and the patient, by quiet and the avoidance of all kinds of excitement, lost all symptoms of disease, and lived sometimes for years without inconvenience, though he perished ultimately of the affection. He remembered an instance of this kind in a gentleman, who, for five years, had never suffered from a symptom of heart disease, though at its commencement, the symptoms were most alarming. He died after a fortnight's illness; the heart was extensively disorganised.

Mr. HOOPER remembered an instance in which the symptoms of diseased heart were suspended in a young lady, after her marriage; but they always returned during the time of pregnancy. Immediately after parturition, however, she was again in apparent health. The stethoscope did not detect organic change. She died three weeks after one of her confinements; no post-mortem, however, was allowed.

Mr. HEADLAND thought we were much more frequently in error, in considering functional diseases of the heart organic, than in considering organic diseases merely functional. How many instances had occurred in which the stethoscope detected organic disease of the heart, when the patient dying from some other affection, the heart was found healthy? The disturbance of the heart's action, in the generality of cases, he considered to arise from mental causes, or from sympathy with disorder of the digestive function.

In the course of the discussion Mr. DENDY alluded to the object he had in bringing his paper before the Society. There were great errors abroad respecting the interpretation of John Hunter's axiom. He (Mr. D.) was aware of all the facts that had been stated, most of which, indeed, were comprehended in the paper. It was in the deductions from these facts, that he differed from many pathologists. He believed that diseases simultaneously *active*, as supposed by their reporters, were, in fact, modified. Modification, he considered, *must* take place in one of two diseases existing at one and the same time. Was not this the case in the instances recorded by Dr. M'Bride and others.

TREATMENT OF

STRICTURES OF THE URETHRA

BY

CONICAL METALLIC BOUGIES.

To the Editor of THE LANCET.

SIR:—I transmit the following observations for insertion in a corner of your Journal. I remain, Sir, your obedient servant,

HENRY T. GREEN, M.D. ED.,
Surgeon.

39, Essex-street, Strand, Oct. 16, 1837.

In the natural course of gonorrhœa it sometimes happens, from the inflammatory symptoms being severe, that a stricture is formed; much more frequently does this troublesome complaint arise from the *treatment* of such gonorrhœal discharges. Several cases of stricture, which have come under my care, have been produced by large doses either of copaiba, or cubebs, administered during the inflammatory stage. Such doses I have often noticed to have the effect of completely checking the discharge for a short time; but, at the expiration of some days, there has been a return of it, accompanied by certain symptoms, such as a prickling sensation in a particular part of the passage; the stream of urine takes on a twisted appearance, and is much diminished in size; pain is experienced in the penis, in the progress of its becoming erect; and after having made water, there is frequently a feeling as if the bladder were not completely emptied. Some of these symptoms may continue for an indefinite time, particularly the discharge, and the twisted appearance of the stream of urine. In several such cases, if we attempt to pass a common metallic bougie, of as large a size as the meatus will take without inconvenience, an impediment will be discovered at a variable distance from the orifice, generally about four inches. This is the seat of a stricture, which is the cause of the discharge, and all

the other unpleasant symptoms. In such a case all our endeavours to check this discharge by means of medicine will prove ineffectual. The so-much-vaunted specific, called after Mr. Franks, has entirely failed in these cases; but I have not yet met with an instance where the discharge did not yield to perseverance in the use of the conical metallic bougies.

In the treatment of these cases, my practice is to pass an ordinary metallic bougie, of as large a size as can be easily passed through the external orifice, for the purpose of ascertaining the seat of the stricture; which being ascertained, my next step is to pass a conical bougie of such a size as will just traverse the stricture without pain; the next sized conical bougie will then have the effect of dilating it very gradually. It is very important that the process of dilatation be proceeded with very gradually, and the patient must have the same sized instrument passed repeatedly before the next size be used. During the process of dilatation there is generally a slight discharge of blood at almost every change of size in the bougie; and the use of the various sizes must be persevered in until the stricture be completely effaced. I need scarcely state, that it is of consequence to thoroughly warm and oil the instruments previous to their being used.

A severe case came under my treatment about a year and a half ago. The subject of it was a gentleman, twenty-two years of age, who contracted gonorrhœa while at Gibraltar, about four years since; he was treated with both cubebs and copaiba, in large doses, which produced two very troublesome strictures; it took him a very long time to pass his urine, and he had a constant and abundant gleety discharge. I attempted to pass No. 6* bougie, but without success. After much trouble, No. 3, silver catheter, was passed; and it was some weeks before I succeeded in the use of the conical bougie, No. 6. I have gradually dilated the passage, until he now uses No. 12, with which size he expresses himself quite satisfied; the discharge has ceased, and I now consider him well; the meatus, indeed, will hardly admit of a larger size.

Some patients have expressed their surprise, when I informed them they had a stricture, when a bougie, of No. 14 size, could be easily passed. A person, a married man, applied to be cured of a gleet of six months standing; he had had a gonorrhœa, which had been suddenly checked by a large dose of copaiba. No. 14 was passed into the bladder with ease, but on attempting No. 15, it was arrested about four inches from the orifice. The *conical* bougie, No. 15, was then used, and the stricture gradually dilated, until the cure was effected by No. 17. It was in this case that I witnessed the superiority of the metallic over the wax bougie; the latter, when passed through the stricture, was with great difficulty withdrawn, owing to the constricted part grasping firmly the instrument. It caused the patient very great pain, and when it was examined, there was an evident circular depression on it caused by the stricture. Similar results have occurred in other cases, so as to lead me to condemn their use.

It is stated upon very high authority (Sir A. Cooper and Mr. Samuel Cooper), that bougies should never be used of a larger size than No. 14; but cases frequently occur where such a size would have no dilating effect. A patient that is now under treatment is rapidly being cured by bougies of the extraordinary sizes of 21 and 22. It is very necessary to advise the patient, after having been cured, to pass occasionally, for a month or two, the last sized bougie which he used, in order to ensure a permanent cure.

* As different instrument-makers may have various sized bougies, corresponding to the numbers that may be mentioned, it may be as well to state that those which I use are after the guage of Messrs. Weiss.

CARBONATE OF IRON.

To the Editor of THE LANCET.

SIR:—I have just received THE LANCET containing the query of Mr. Sandalls. In reply to which, I beg to state that I have generally succeeded in drying proto-carbonate of iron, so as to contain the proportions of carbonic acid stated in my paper, by filling a tall narrow bottle with the proto-carbonate, washed and freed as much as possible from the moisture by pressure, so as to expose as narrow a surface as possible to the action of the atmosphere, and then placing the whole in a tolerably warm oven. The surface of the carbonate invariably became iced over with peroxide of iron, but this did not extend further than a line or two downwards. The mouth of the bottle containing the carbonate, while drying, may be covered with bibulous paper. Should Mr. Sandalls adopt this plan, I think he will succeed. I may, however, observe, that the best pharmaceutical preparation of this kind is that which has not been submitted to any heat. The carbonate may be freed from as much moisture as possible by pressure, and then bottled for use. It ought to be made often. I have further to remark, that washing repeatedly with hot water is very essential, inasmuch as it appears to me as if the carbonic acid became more firmly united to the protoxide by this process, and that the protoxide was in some measure divested of its

property of taking up more oxygen. I remain, your's respectfully,

J. S. Hiley.

Elland, near Halifax,
Sept. 21st, 1837.

P.S. Bottles covered with tin-foil are very useful for preserving the proto-carbonate of iron.

LIFE ASSURANCE.—FEES TO MEDICAL PRACTITIONERS.

To the Editor of The Lancet.

Sir:—My attention having been directed to an article which appeared in your publication of the 16th ultimo, on the subject of the payment of fees to medical gentlemen, when applied to by Insurance Companies, I beg to be permitted to make a few remarks thereon.

To me it appears that the resolution of the Leeds Medical Society is based upon an erroneous impression. They assume that Assurance Companies are the only parties benefitted by the information they are called upon to give—an assumption at variance with the opinions of all writers upon the subject, and one from which every medical man, who, for the protection of his family, or for any other purpose, becomes a party to an assurance, must dissent. If such be the opinion of the Leeds Medical Society, of course none of its members will ever think of assuring either his own life, or the life of any other person.

When any one proposes assurance, he is required to furnish evidence as to his health and habits. On that evidence, and that alone, many of the Companies accept or reject his proposal. Some Companies not having full confidence in the usual medical attendant of the party, in addition to his *testimony*, obtain the *opinion* of another practitioner who, being unconnected with the proposer, may be supposed to act for their protection. For the *opinion* of the latter they pay, for the *testimony* of the former they do not.

You will perceive that I make a distinction between *opinion* and *testimony*. This I do because the medical referee of the party whose life is to be assured is not asked to give that which can, with justice, be called an opinion. The application has reference to a matter of an entirely pecuniary nature—does not call for the exercise of any professional skill—does not require an interview with the patient, but simply asks the result of past experience.

The members of the medical, like those of the legal, profession are usually considered, and generally are, the personal friends of those who seek their assistance. They both recognise a practice almost peculiar to those professions, that of charging for advice or consultation. Lawyers are not noted for the shortness of their bills, and seldom forget to charge for their labour, real or imaginary; yet a charge for answering the inquiries of a party referred to them would form an unusual item, and if claimed from the *party referred* would be a perfect curiosity.

I am persuaded that the members of the Leeds Medical Society will themselves break the rule which they have recommended for the adoption of their brethren. Unless they can obtain the co-operation of every member of the profession residing near them, it will be found to operate to their injury, by inducing their patients to seek other medical aid. It will fail, because friendship and a valuable patient will often stand in the way, and because Assurance Companies, having due regard to the payment of their losses, will resist it. Looking to the great number of proposals made and rejected, or not completed, any office adopting the rule will soon find it ruinous.

In conclusion, it is right that I should observe, that my remarks apply only to cases, wherein the patient of the party referred to, is to benefit by the contract. Many assurances are effected on the lives of persons, who are in no way interested in the advantages to be derived therefrom: in such cases the proposer can have no claim whatever on the kindness or courtesy of the medical referee. To such, therefore, my remarks do not extend.

As the subject to which my observations apply, has lately excited much attention, I rely upon your known liberality, when asking you to permit it to be freely canvassed. I am, Sir, your obedient servant,

J. R.

October 10th, 1837.

UNION OF STOW.

To the Editor of The Lancet.

Sir:—Allow me to observe, in a spirit of fairness, that the statement regarding the Union of Stow, contained in the table quoted in your report of the proceedings of the British Medical Association is not correct: it is there stated that the number of surgeons appointed by the Board of Guardians since the formation of the Union is only three to attend the thirty-one parishes, and that previously the same number was attended by eight. The fact is, that the number appointed by the Board is three, one for each district, but the actual number of medical men attending the Union is seven, as follows:—District of Stow, Mr. J. Freeman, one; district of Ruttlesden, Mr. Bree, who appoints Mr. J. C. Slayter and Mr. M'Intyre, three; Walsham district, Mr.

Kent, who appoints Mr. Freeman, of Walsham, and Mr. Barsham, of Norton, three; total, seven.

I have no doubt but that the other Unions have sub-appointments made in the same manner; it therefore behoves the Committee appointed to inquire into the subject to be quite sure that they obtain their information from correct sources. I am, Sir, your obedient servant,

C. R. Bree.

Stowmarket, Oct. 9.

*** Mr. Bree is himself wrong when he supposes that the report of the proceedings of the British Medical Association was incorrect. The Poor Law Amendment Act does not empower the Poor Law Commissioners to delegate the authority of making the medical appointments for the Unions. The gentlemen who have received the *sub*-appointments of which Mr. Bree has spoken, are not responsible to the Commissioners, or to the law, for the treatment of the sick paupers. Hence it is perfectly correct to state that there are only three gentlemen who are legally appointed to attend the necessitous poor in the Union of Stow.

HYDROPHOBIA.

STRYCHNINE. — IODINE.

We have received a communication upon the above subjects from Dr. Epps, in which that gentleman remarks, that strychnine has been given to an extent so as to produce a diseased state, very similar to *hydrophobia*. It produces, when thus prescribed, great anxiety of mind,—a fear of something about to occur,—a tendency to despondency; the patient exhibits great sensibility of the *cutaneous* surface to cold, so as to shrink convulsively from the least wind, and to start convulsively at the slightest noise,—a species of *imbecility arising from an excessive acuteness to impressions*.

Dr. Epps has seen such effects produced by the use of strychnine internally in *nervous convulsive* disorders. A gentleman was affected in this way by the use of strychnine. He himself felt the misery arising from the conviction that he was passing into a state of imbecility. It was a painful situation, and one that required decision. Convinced that strychnine acts decidedly upon the *motor nerves*, and convinced, also, that the *upper part of the spinal chord* may be regarded as the point through which the motor system could be operated on, Dr. Epps determined to apply a *plaster*, over the surface of which *powdered iodine was sprinkled*, down the spine, extending from the back part of the head to between the shoulders. This was applied: it produced an almost unbearable *burning* sensation, and occasioned an eschar, like to burned or scorched leather. The effect was decidedly beneficial, and the patient was wonderfully relieved in reference to the symptoms under which he was suffering.

The effect in this case convinced Dr. Epps that in *hydrophobia* the application of an iodine plaster *all the way down the spine*, would produce benefit; and this assurance is founded on the fact, that a great similarity exists in the effects produced by strychnine; and the effects produced by the hydrophobic poison, and that these effects from the abuse of strychnine were removed almost immediately by the application of the *iodine plaster*.

Dr. Epps adds, that these views were promulgated three years since to his pupils.

METAMORPHOSES OF THE MUSQUITO.

The musquito (says Mr. Gilchrist, surgeon,) has three stages of existence, in two of which it is a water insect; in the third, the well-known winged one.

I observed several musquitoes on the surface of some stagnant water, each in close proximity to a yellowish substance, which, when viewed through the microscope, proved to be a collection of eggs which the musquitoes were depositing; each collection, though not consisting of fewer than one hundred eggs, did not exceed three-twentieths of an inch in length, and about one-twentieth in breadth. The eggs were arranged in lines standing on end, and were each about one-fortieth of an inch long.

A few of these collections of ova were placed with some of the water on which they floated, into a tumbler, and placed under a glass shade. In two days and a half, the water was found to swarm with animalcules. The shells of the ova were still adherent, as when first observed. On examining one minutely, the larger or under end was found to have opened like a lid, to allow the insect to escape into the water.

The body of the newly-hatched insect is semi-transparent. In the thorax, the heart is seen furnished with four projections; from this organ two blood-vessels proceed down the centre of the body, to the end of the tail, which is to be always seen just above the surface of the water, the animalcule having its head downwards.

Between the heart and the elongated tail, an active circulation is to be observed, indicating, probably, that the latter constitutes the lungs or gills, it being always above the surface of the water.

Its motion is quick, and it always goes tail foremost; when in search of food it throws out a couple of brush-like tentacula, which move circularly, and create a vortex

by which the food is attracted within the reach of the depredator. The food appears to be principally decomposing vegetable matter. They occasionally, however, devour their own kind, and their recently-quitted shells, &c.

At the termination of twenty-one days, during which the water was thrice changed, they had attained to three or four-twentieths of an inch in diameter. On attaining this age, they underwent a second metamorphosis. The shape is materially altered, but the greatest change is that which regards the seat of the gills. These organs are now situated in the thorax, their former site, the tail, being absorbed; and the channel of communication between them and the air, consists in two small tubes attached to the upper part of the thorax. In this stage of existence the insects are much less active than in their former state. They do not require food, and have no mouth, resembling, in this respect, the chrysalis of the butterfly. They seldom leave the surface, and, when they do so, speedily return to it.

The insects remain in this stage about forty-eight hours, towards the termination of which the legs and proboscis of the winged musquito can be distinctly seen through the thin membrane that surrounds it. This, in due course, bursts, when the musquito draws itself out, stands on the surface of the water, a few minutes, to dry and expand its wings, and then flies to a dry situation.

If the musquito, in either of the two first stages, be taken out of the water, it speedily dies, and it is as quickly killed by immersing it in that fluid after becoming the winged insect.

We learn from the above details, that the musquito is a most prolific insect, and that, as stagnant water is necessary to its propagation, all such ought to be kept as distant as possible from our dwellings.—*Madras Journal of Literature.*

UNIVERSITY COLLEGE HOSPITAL.

LUXATION OF THE CERVICAL VERTEBRÆ WITHOUT FRACTURE.

A CASE of this very unusual accident was brought to the hospital on the morning of the 12th. It appeared that the patient, a carpenter, thirty-five years of age, was on the previous evening sitting on a rail, about four feet in height, when he fell suddenly backwards, pitching on the ground with considerable force, and falling, as he supposes, on his shoulders, and the lower part of his neck. He was quite sober at the time. On being taken up he was found to be sensible, but the use of both his arms and legs was entirely lost. He was removed to a beer-shop in the neighbourhood, where he remained during the night, and in the morning, at nine o'clock, was brought to the hospital. He was sensible on his admission, and free from pain when he remained at rest. When he was moved, however, he complained of great pain across the shoulders. The upper and lower extremities, and almost the entire trunk, were completely paralysed, both as regarded sensation and motion, which were, however, natural in the head, neck, upper third of the thorax, and a few inches below the shoulders. The breathing was oppressed, and carried on almost entirely by the diaphragm; the countenance rather anxious, the surface warm, pulse natural. Since the accident, he has passed neither urine or fæces. He was ordered an enema, and the urine, was drawn off by the catheter.

Two, P.M. Seems restless; countenance indicates greater anxiety; the breathing is more oppressed; there is slight loss of power on the left side of the neck; the articulation is impaired; the abdomen is tympanitic; tongue dry; much thirst.

Five, P.M. Restlessness increased; he is continually rolling his head from side to side; the muscles of deglutition on the left side are paralysed; great thirst; dry and foul tongue, which, when he attempts to speak, protrudes at the left angle of the mouth; great difficulty of deglutition; difficulty of breathing and anxiety of countenance increased. His urine has been escaping involuntarily for some time; at half-past six twelve ounces were drawn off by means of the catheter. He got gradually worse, and died at eight, P.M.

The autopsy was performed eighteen hours after death. The blood, which was perfectly fluid, was much effused between the posterior muscles of the neck. There was complete luxation between the fourth and fifth cervical vertebræ, the latter being thrown backwards. The proper ligaments of the vertebræ were lacerated, as were also some of the tendons of the longus colli muscle. *There was no fracture of the articulating processes.* On opening the vertebral canal the chord was found to be compressed between the arch of the fourth and body of the fifth cervical vertebræ; the membranes of the chord were not much injected. The chord appeared a little softened at the compressed portion, but otherwise its texture was unaltered. The examination was not conducted farther. Mr. Liston pointed particularly to the fact of there being no fracture, a very unusual circumstance in accidents of this description, and the absence of which rendered the case peculiarly interesting. Had the precise nature of the accident been ascertained, it is probable that an attempt at reduction might have been made.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.

EXTRACTION OF HARD LENTICULAR CATARACTS.

MARTHA JARRETT, ætat. 74, was admitted into the hospital on the 18th of July, 1837, having a hard lenticular cataract of the right eye. She had a similar disease of the left organ a year before, and underwent the operation of extraction in the Brighton hospital. She can see but imperfectly with this eye, however, owing to great irregularity of the pupil. On Wednesday, 19th of July, Mr. Guthrie succeeded in extracting the lens from the right eye. She was, of course, put to bed, and kept quiet, but at about eight o'clock in the evening pain occurred in the eye, and she was consequently bled by Mr. Archer, the house-surgeon, to the extent of sixteen ounces. The pain was entirely subdued by this means. After this antiphlogistic measure no pain or uneasiness were perceived in the organ.

Thursday, July 27. This day the bandages are entirely removed, and the patient has distinct vision, and a perfectly natural pupil; in fact, the functions of the organ are as perfect as in any woman of her age.

The rapidity of the patient's recovery in this case is remarkable.

August 5. The patient is sent back to her native place, Tunbridge Wells, quite cured.

John Haskell, ætat. 60, a Chelsea pensioner, was admitted July 17, 1837, with a hard lenticular cataract of the right eye. The left eye was operated upon two years previously for the same disease, and with success, at *Guy's Hospital*. About a year ago the right eye became affected, and at Christmas the sight was entirely gone. He is a strong and stout man, and was, previously to admission, subjected to a course of purgatives.

Wednesday, July 19. Mr. Guthrie performed the operation by extraction, dividing the superior half of the cornea. He was put to bed, and slept soundly the whole of the ensuing night, being, of course, kept upon spoon diet.

Friday, July 21. The eye still without pain or tumefaction, but he complained of a dull aching in the back of his head, which was relieved by a dose of castor-oil, acting smartly on the bowels.

22. Mr. Guthrie opened the eyes to-day; there was complete adhesion of the sides of the corneal incision, and the man could see very distinctly.

23. On Sunday, this day, the patient is allowed to rise up, and his diet is a little improved.

25. No inflammation has arisen, and consequently it has not been deemed necessary to abstract any blood from the patient: a most remarkable circumstance. He could see a common pewter basin at the distance of twenty feet, and bore the light with comfort.

29. The eye still progressing.

31. The bandages are left off, and he walks about the hospital with only a green shade over his eyes.

August 3. This day he is discharged, with perfect vision. He could distinguish the hours on St. Martin's clock from the street.

Sept. 8, 1837. The first case for operation this day was Edward Ward Edwards, ætat. 37, a journeyman painter, from St. Asaph, Flintshire. He was totally blind, having a cataract in each eye, and both irides adherent to the lenticular capsules, through the whole circumference of the pupil. The left eye had been affected for sixteen years, but the right eye for only about four years. Mr. Guthrie having placed the patient in the proper chair, in the light of a high window, operated upon both eyes. He first detached the lens of the left eye from the pupillary margin, to which it had, apparently for years, been adherent. This step required the exercise of considerable muscular power. The division of this lens showed it to be of a horny consistence. The fragments were separated, and a few bits pushed forwards through the pupil. The iris was wounded, and some blood escaped into the anterior chamber. The right eye was next punctured, and the union between the iris and the lens overcome with the point of the needle. The lens in this organ was softer, and the adhesions less tough, than in the other, but some hæmorrhage was necessarily occasioned by the incisions effected in the iris. The eyes were covered with pledgets, and the patient sent to bed. The solution of belladonna was put into the right eye, and the extract rubbed upon the temple.

In the evening Mr. Archer abstracted twenty-two ounces of blood, to remove the pain which had supervened, and gave him an opium and calomel pill.

Wednesday. He was cupped on the temples to ten ounces, and a mercurial course was ordered and adopted.

Thursday. Mr. Guthrie opened the lids; slight inflammation was present, the blood being entirely, and the fragments of lens being in some degree, absorbed.

Sept. 20. The mouth has become sore, and the iritis has diminished. The pain has entirely gone.

21. The ptyalism is severe. The left eye is clear, but the iris is uneven. The right iris is discoloured, and a halo of sclerotic inflammation is visible round the periphery of the cornea. A slight turbidness is obvious in this membrane. The patient has no intolerance of light. He distinguishes the presence of opaque bodies between himself

and the light. The belladonna is continued, though it has hitherto had little or no influence on the pupil. The use of the mercury with opium is suspended.

Professor Dieffenbach, of Berlin, was present at this operation. He is a very gentlemanly and agreeable man, and speaks English fluently.

EXTRACTION PERFORMED IN BOTH EYES AT ONCE.

Jane Brandhurst, æt. 61, admitted Sept. 11, 1837. From Wiltshire. She has been employed all her life in the farming business, and has not habitually used her eyes on minute objects. She has not been much of a reader, and has not spent an unusual length of time at needlework. She has always had very fair health, but was of a nervous excitable habit. She lost the use of her right eye first; the sight of it had been impaired for more than two years, and the loss of sight had been complete since May last. The sight of the left eye became dim nearly a year since; and the complete blindness came on about a month before her admission.

She arrived at the hospital on Monday, and being properly prepared by belladonna, &c., underwent the operation as follows:—In both eyes, there were hard lenticular cataracts, but in the left organ, the capsule was also opaque. The right eye was first operated upon by Mr. Guthrie: a semilunar flap of the upper half of the cornea being made, and the lens being extracted without difficulty. In the left eye the same operation was resorted to; but a little difficulty in completing the incision was created by the iris getting under the blade of the scalpel. In consequence of this event, Mr. Guthrie introduced "his knife," which is included in a silver vagina, but he did not succeed in effecting his wishes, and the incision of the cornea was finished with a round-edged scalpel. Upon withdrawing the knife first used, Mr. Guthrie observed that it had become bent on cutting through the cornea. The woman was put to bed. At six o'clock the same evening, severe pain having come on in both eyes, she was bloodied by Mr. Archer, the house-surgeon, to twenty-five ounces, being a stout plethoric woman; and cold pads were applied continually to the eyelids during the night. Three grains of calomel, and one of opium were given at nine o'clock P.M., but without securing sleep to the patient.

Sept. 12, 1837. At five o'clock P.M. to-day, she was bled to twelve ounces, and the pain which had arisen was relieved. The wet pads are continued. Mr. Archer administered a dose of castor-oil with effect.

13. She passed rather an uneasy night, having no sleep. This morning the eyelids were puffed; consequently, the surgeon ordered to be abstracted twenty ounces of blood; that is, ten ounces from each temple; quiescence, cold applications, and severe abstinence being also enjoined.

18. Since the last notation the inflammation has been kept under by negative means. Mr. Guthrie this morning opened the eyes; both corneæ were healed, the patient had a most acute perception of light, the moderated degree of illumination permitted in the ward, appearing to her like bright daylight; but she could not distinguish objects She had slept comfortably for several nights.

21. The patient now sits up. There is still some impatience of light, so that the lids can only be opened when the patient's back is towards the window; it is impossible on that account to distinguish with the eye the condition of the iris. The conjunctiva is much injected, and the eye-balls, generally, are covered with mucus. She can distinguish her thumb from the other fingers; the hand appears to her to be very white; she cannot as yet distinguish her ring. She is perfectly easy and comfortable. She is allowed an improved diet.

BOOKS RECEIVED.

The Edinburgh Dissector; by a Fellow of the College of Surgeons, in Edinburgh. P. Rickard, Edinburgh. 1837. 9s.

Elements of Anatomy, by Jones Quain, M.D. Fourth edition. Part First. Taylor and Co., London. 1837. 12s.

The Cyclopædia of Practical Surgery, edited by W. B. Costello, M.D. Part II. London: Sherwood and Co. 5s.

TO CORRESPONDENTS.

We concur with some of the views which have been advanced by *J. R.* In the next LANCET we shall offer a few remarks on the principle of demanding fees from the assurance offices, and we are strongly impressed with the conviction that many very incorrect and untenable opinions are entertained upon that subject.

We have received *M. Dupotet's* second letter; we decline publishing it, because we see no hope of its bringing to a conclusion the contest between animal magnetisers and their opponents. The manuscripts of M. Dupotet have been left for him with our publisher.

We have received the cases and remarks of our correspondent, from Peckham Rye, on the subject of vaccination. We have not inserted the cases, because they are not given with sufficient accuracy of detail to prove any thing; the subject is one of a serious nature, and not to be dealt with lightly.

The Noctes Pseudo-pharmaceuticæ will be resumed in our next.